

# *The* HOUSE WE LIVE IN



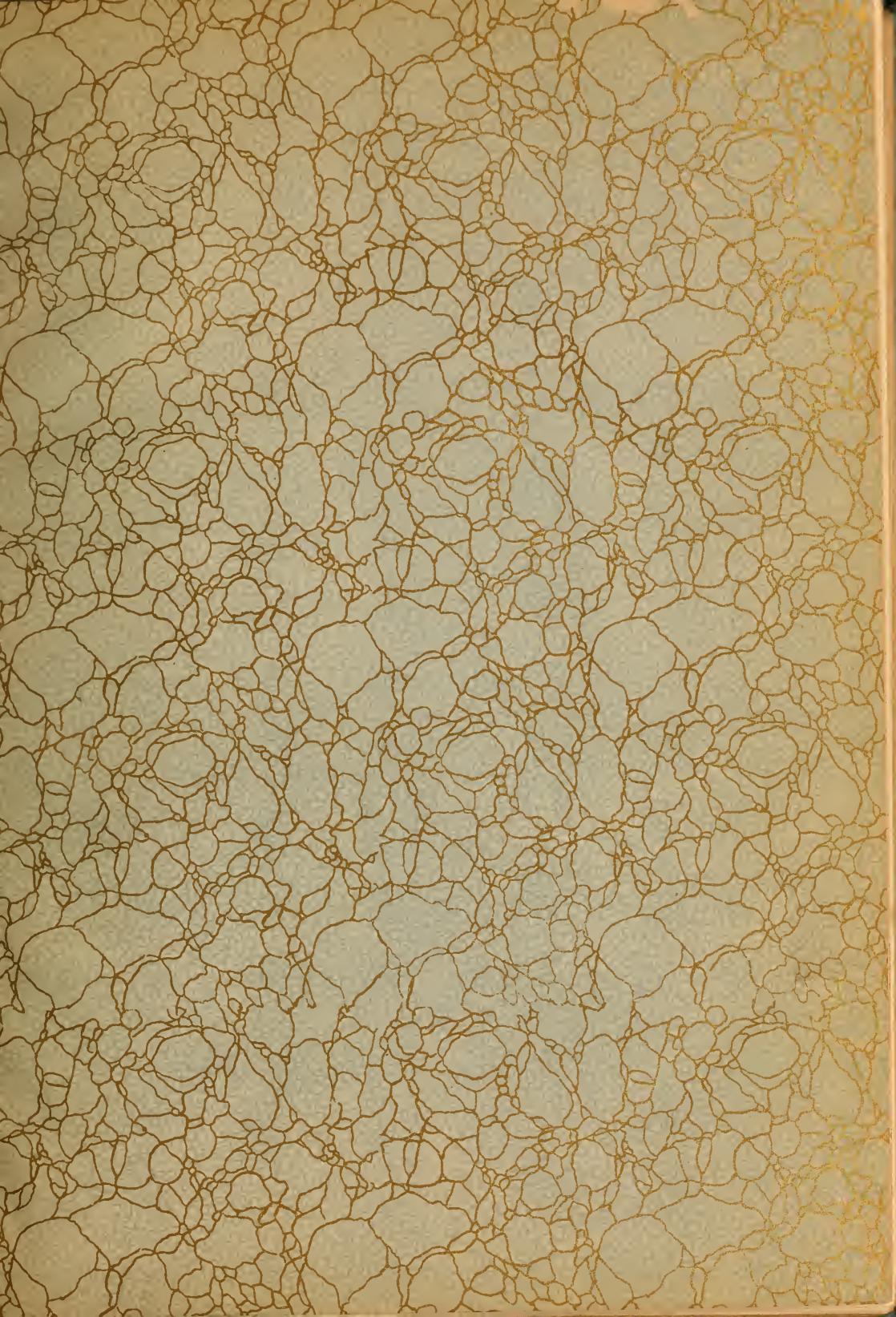
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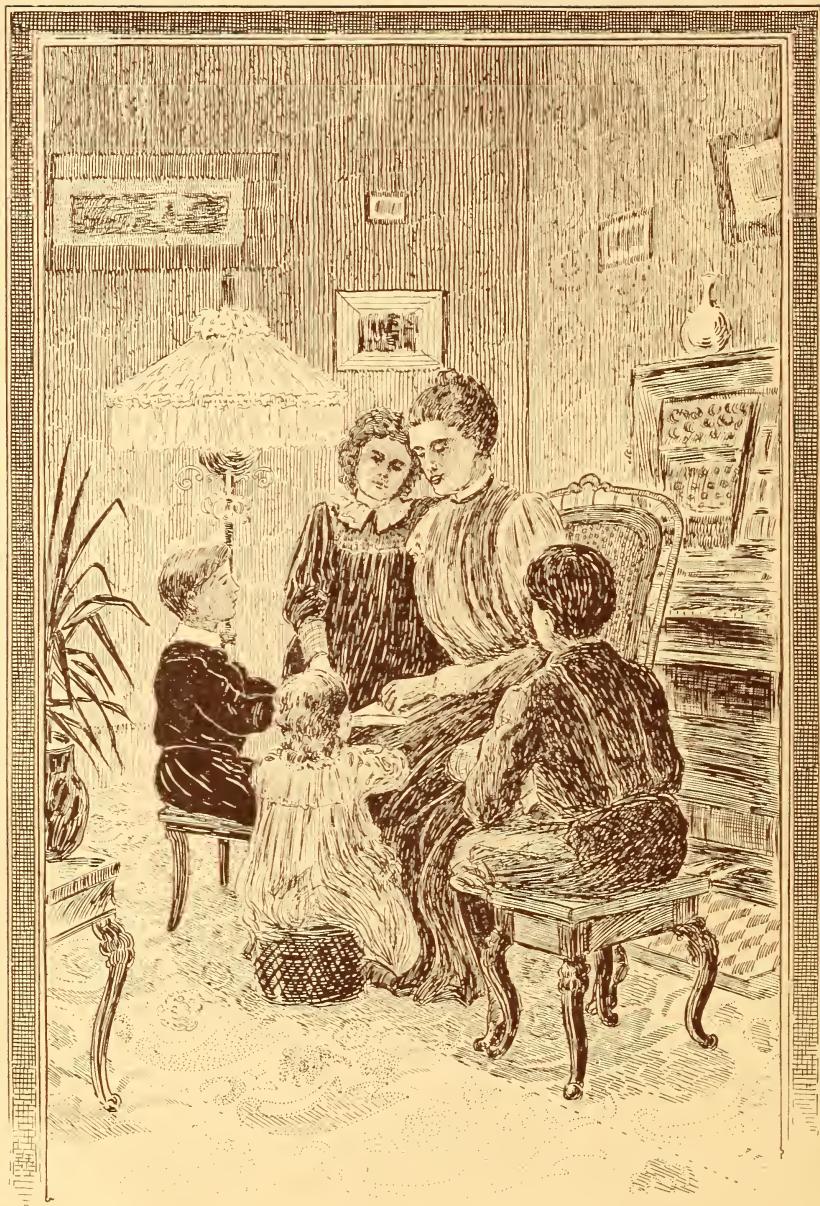




THE HOUSE WE LIVE IN







# THE HOUSE WE LIVE IN

OR

## The Making of the Body

*A Book for Home Reading, intended to Assist  
Mothers in Teaching their Children  
How to Care for their Bodies,  
and the Evil Effects  
of Narcotics and  
Stimulants*

*VESTA J. FARNSWORTH*

"For we know that if our *earthly house* . . . were dissolved, we have a building of God, an house not made with hands, eternal in the heavens." 2 Cor. 5:1

"What? know ye not that your body is *the temple* of the Holy Ghost which is in you, . . . and ye are not your own?" 1 Cor. 6:19

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To

MY DEAR FRIENDS THE CHILDREN

and

To All Who See the Creator  
in His Creative Work

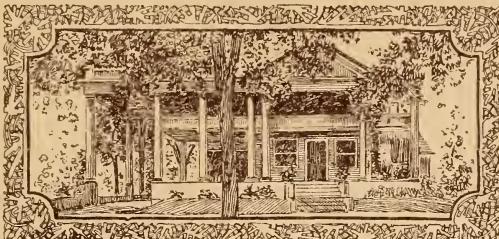


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# THE HOUSE WE LIVE IN



## HOUSES AND TEMPLES

ELEN: See this picture, mother. How pretty the house looks, with its wide windows and porches!

MOTHER: Yes, it is a fine picture, and such a house would make a lovely home. Men build better dwellings now than they did many years ago.

PERCY: Do people build the same kind of houses in all countries?

MOTHER: Oh, no! If we should visit the Indians, we would find them living in rude tents called wigwams, or *teepees*, made of mats and the bark of trees. In some countries people live in tents. Where it is very warm they build so they may keep cool. In cold climates they make their houses warm. Can you tell me some things which are used in building houses?

ELMER: Stone, brick, iron, wood, paper, earth, and straw. The Esquimau lives in a house made of large blocks of snow and ice.

MOTHER: You would not think such a house very warm, but it is the best he can make. Perhaps you have noticed

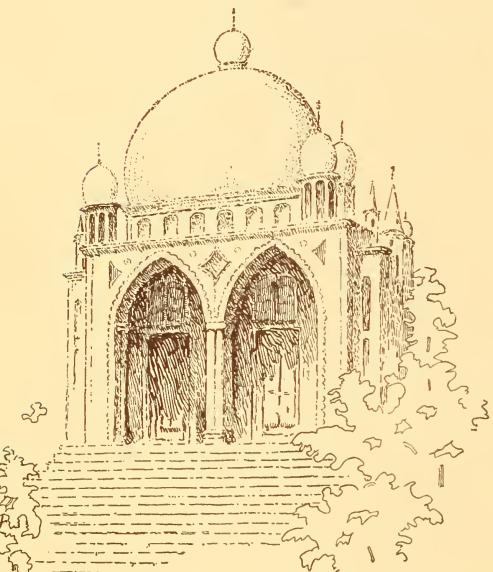
that some houses are large and some are small. Some have many rooms, others but few. They are made in many shapes and colors, and in some countries there are hardly two which look alike.

AMY: Here is another picture. What kind of a house is this, mother?

MOTHER: That is called a temple. It is built for the purpose of worship.

HELEN: Is a meeting-house a temple?

MOTHER: It might be called by that name, for it is the house of God, where His people worship Him. But as we were looking at these pictures I have been thinking of another kind of house in which we all live, which is more wonderful than any building ever made by men. There are a great number of these houses. All are made of the same things, all have the same kind of frame, all have the same number of rooms, and, though there are thousands of them



in every country, they are all lighted, heated, finished, and furnished the same way.

PERCY: Oh, I know what you mean! You are thinking of our bodies.

MOTHER: Yes; and if you study this house God made for you to live in, you will be ready to say, with King David, "I will praise Thee; for I am fearfully and wonderfully made; marvelous are Thy works; and that my soul knoweth right well." The more men study this body of ours, the more they find to make them wonder at the wisdom of its Maker. If a man invents a useful machine, such as a watch or an engine, he is praised and called a great man. But how few ever praise and thank the Lord for the body He has given them, and try to learn the best way to care for it!

HELEN: I should like to know how to care for mine, but I never thought of my body as a house before.

MOTHER: We may call it a house, because the Bible calls it so; and, more than that, it says it is a temple. Listen to this verse: "What? know ye not that your body is the temple of the Holy Ghost which is in you, which ye have of God, and ye are not your own?"

AMY: Then this house or temple of the body does not belong to us, mother, for it says, "Ye are not your own."

PERCY: I see how it is. You know people sometimes build houses to rent, and the One who made the house we live in gives it to us for a home as long as we live, and He wants us to take good care of it.

MOTHER: That is right. The house is loaned or "rented" to us, as Percy says, for us to live in and care for. God

cares for it too, and if it wasn't for that it would have been destroyed long ago. Before any of us were old enough to know we had such a gift as our bodies, kind friends cared for them for us, and every moment our heavenly Father watches over us, for "in Him we live, and move, and have our being." When we go to sleep He still keeps the heart engine pumping, and the parts which become worn out during the day are nicely mended without our thought or care.

ELMER: I want the house I live in to be like that pretty temple we saw in the picture.

MOTHER: Then my boy must be very careful to keep it clean, not only outside but inside as well. You know we sometimes see houses painted nicely outside, and we think what good homes they would make; but when once inside we find the rooms so dirty we want to get away. So boys and girls may be nicely dressed and look well outside, but if they do not eat good food and have good habits, their body-house is not fit to live in.

PERCY: Adam and Eve must have had fine, large houses.

HELEN: And they lasted a long time, too. Adam lived in his for over nine hundred years.

MOTHER: It is said that men keep building better houses all the time, but the first body-house God made was the best ever seen in this world.

AMY: But why are they not made good and lasting now, mother?

MOTHER: One reason is because we do not use them well. Many persons would do better in caring for them-

selves if they knew better how to do it. If I gave you a costly watch, Percy, what is the first thing you would want to know about it?

PERCY: How to take care of it.

MOTHER: Yes, you would find out how and when to wind it, and just how to use it so it would keep good time. We should be even more careful to learn all we can about our bodies. We should learn for what each part was made, and how to keep it in good order. Men have taken bodies like ours apart, just as a watchmaker takes out all the wheels of a watch, and they have found out many things about them in this way. We should learn all we can about how to keep well and strong. If we are ill we make much trouble for others, and must suffer ourselves. If we are well we shall be a help and blessing to all around us. Not long ago I read this prayer of a little girl for her body:—

“Dear God, bless my two little eyes, and make them twinkle happy. Bless my two ears, and help me to hear mother call me. Bless my two lips, and make them speak kind and true. Bless my two hands, and make them good and not touch what they mustn’t. Bless my two feet, and make them go where they ought to. Bless my heart, and make it love God and my father and mother and everybody. Please let ugly sin never get hold of me—never, never!”

“The Lord my body did prepare  
My dwelling-place to be,  
And still it is a temple where  
He daily meets with me.

“ My head, my hands, my heart are His;  
    He knows my being well;  
And all its many mysteries  
    My Lord alone can tell.

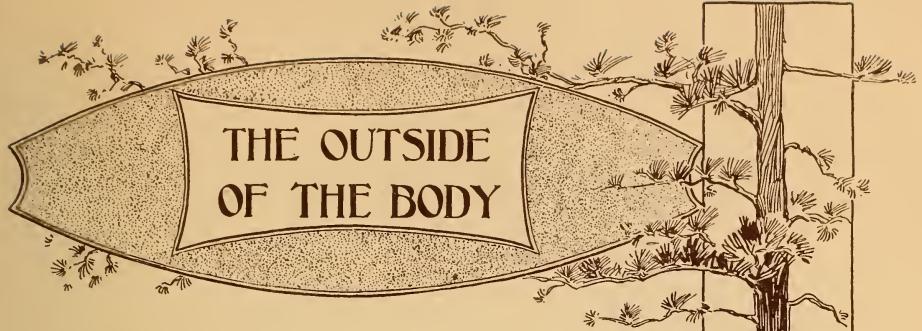
“ To walk in ways of wickedness  
    My feet can not afford;  
For all the powers I possess  
    Are holy to the Lord.

“ I’ll pray to Him from day to day  
    To lead my steps aright,  
That I along His heavenly way  
    May be a shining light.

“ And He will keep my temple free  
    From every touch of sin;  
He truly saves and cleanses me,  
    That He may dwell within.

“ My eyes must see the good and true;  
    My ears must hear His voice;  
My hands be ever glad to do  
    My heavenly Father’s choice.”

—C. M. Snow.



## THE OUTSIDE OF THE BODY

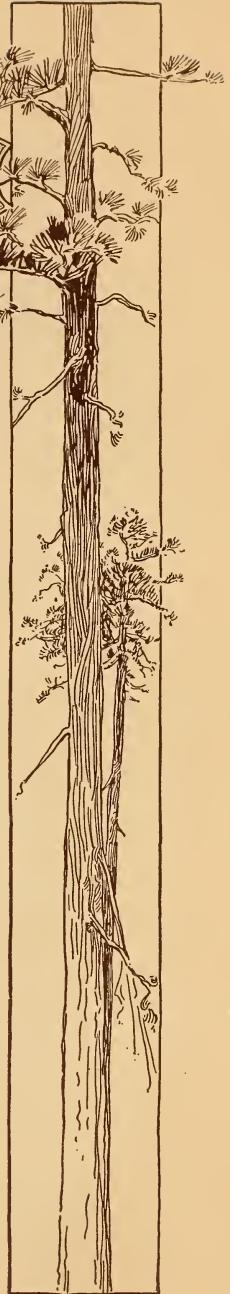


OTHER: Let us look at the outside of our house before we try to see how it is made and furnished inside. I think you know now that when I am talking about a house or temple I mean the body. In some ways our bodies are like trees as well as houses. Look at this picture and tell me what you see.

PERCY: A tree with a straight stem or trunk. It also has branches, called limbs, and is covered with bark.

AMY: And it has roots, which hold it fast in the ground.

MOTHER: Yes, trees are made to stand in one place while they live, and so they have roots. We have limbs like the tree, but our lower limbs are used to carry us from place to place, for we were not made to stand still. Can you think of another way in which we are like the tree?



HELEN: Oh, I know! The middle part of the body is called the trunk.

MOTHER: Can you think of any other kind of trunk than the trunk of a tree or the trunk of the body?

AMY: A trunk in which to put clothes.

MOTHER: Yes, such trunks are useful to carry clothes. The upper part of the trunk of the body, or the part between the arms, is called "the chest." Sometime we will try

to learn what is packed away so nicely in the chest, or trunk, of the body, but we will only look outside now. What is on top of the trunk?

HELEN: A strong, shell-shaped box made of bones, called the head.

MOTHER: This is what we might call the jewel-case, or the best part of all, for without it all parts of the body would be useless. Here we find the eyes, nose, mouth, and ears; and the head is fastened to the trunk of the body by the neck. How many limbs have we?

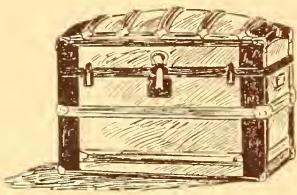
PERCY: We have two arms and two legs, and these are called our limbs.

MOTHER: Now I think you can name the main parts of the body. What are they?

HELEN: The head, trunk, and limbs.

MOTHER: You said the tree was covered with bark. Look at your hand. With what is it covered?

AMY: With skin.



MOTHER: Yes; we will talk more about this soft covering of the body at another time. We found these body-houses of ours are made to walk, work, run, jump, and do many other things. How are our limbs different from those of a tree?

PERCY: They have joints so they can move many ways.

MOTHER: You may all put your arms out straight. Now raise them above your head and then touch your head without bending them.

HELEN: We can't do it, mother.

MOTHER: Let us see, then, how many joints, or bending-places, we have. We will call them the hinges of our house, for they help us to use our limbs, just as the hinges of a door help us to open or close the door. Please bend your arm and tell me how many parts it has.

PERCY: My arm has two parts.

MOTHER: What do you think would be a good name for the part near your shoulder?

AMY: The top arm, or upper arm.

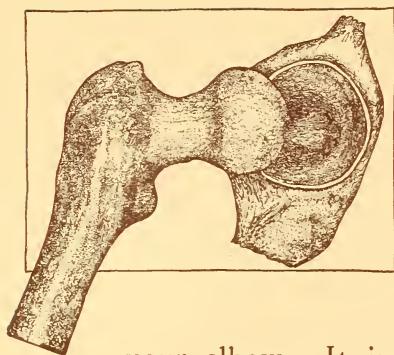
MOTHER: I think upper arm is best. Now if that part is the *upper* arm, what would you call the other part?

ELMER: The lower arm.

MOTHER: It is also called the forearm. Now move your elbow joint backward and forward, and tell me what kind of joint it is.

HELEN: It is like a door hinge, for I can move it only two ways.

MOTHER: Yes, the elbow joint unites the upper and lower arm, and it can swing only one way. What shall we call the joint that joins the upper arm to the shoulder?



your elbow. It is called a "ball-and-socket" joint; that is, one end of the bone is shaped like a ball, and this fits into a hole shaped like a cup in another bone, like the one you see in the picture. This shows the hip joint, which is also a ball-and-socket joint, the same as we found in the shoulder. Now what is the joint called at the lower end of the forearm?

AMY: It is called the wrist.

MOTHER: The wrist is a joint that moves very easily in many different ways. Now how many joints, or bending-places, have we found in the arm?

PERCY: The arm has three joints.

MOTHER: Elmer, you may take this ball. With what do you hold it?

ELMER: With my hand.

MOTHER: Tell me some ways in which we use our hands.

HELEN: We hold, push, pull, lift, catch, and feel with our hands.

MOTHER: The inside is called the palm of the hand. What do you find at the ends of your hands?

AMY: Fingers.

PERCY: The shoulder joint.

MOTHER: Is this joint like the one in your elbow?

HELEN: No, for I can swing my arm backward or forward or any way I like.

MOTHER: That is because it has a different joint than

MOTHER: Look at your fingers. Are they all alike?

PERCY: One is much shorter than the others; all are different in length, and one is very small.

MOTHER: What do you call your short finger?

ELMER: My thumb.

MOTHER: You would find it hard to button your clothes and do many other things if you had no thumbs. A dog has no fingers, and if he wishes to hold or carry anything, he does it with his teeth. The first finger is called the forefinger, or index finger, because it comes first, and we use it to point with. The second is the middle finger; then we have the third finger; and the fourth is called the little finger, because it is the wee, tiny one of all. Open and shut your hands quickly. What do you call the parts of your fingers where you bend them?



HELEN: Finger joints and knuckles.

MOTHER: You see there are many joints in the hands, so we can move them easily and quickly. What do you find on the ends of your fingers?

AMY: Finger-nails.

MOTHER: These hard, horny nails protect the ends of the fingers, and give them strength. Our hands were given us to help ourselves and others, and we should keep them neat and clean. They were not made to strike or steal.

AMY: I read this verse about our hands not long ago:—

“ Hands were made to be useful,  
    If you teach them the way;  
Therefore for yourself or neighbor  
    Make them useful every day.”

PERCY: You haven’t told us about the lower limbs yet, mother.

MOTHER: No; and any boy or girl who enjoys running and jumping would think theirs a hard lot if they had no legs.

ELMER: I saw a boy with only one not long ago.

MOTHER: It is a great loss when a person loses an arm or a leg. Such people are called cripples. How many parts has each leg?

AMY: Each one has two parts.

MOTHER: And how many joints has the leg?

HELEN: Three joints.

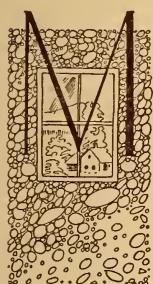
MOTHER: That is right. The one at the hip, as I have said, is a ball-and-socket joint; the one at the knee is a hinge joint, and the ankle is quite like the wrist. Then we have the foot, with a number of small joints, like the hand.

PERCY: But we have toes on our feet instead of fingers; still there is the same number.

MOTHER: Yes, and some people can use their toes to draw pictures, write, and do many other things. Now we have found what our body-house is like on the outside, and we see how well each part is made for the work given it to do.



## SUBSTANCES IN THE BODY



MOTHER: Percy, do you remember what men use in building houses?

PERCY: They use stone, wood, brick, iron, glass, lime, and paper.

HELEN: And some houses are made of earth and straw.

MOTHER: Yes, and some of these things are found in the body-house.

AMY: Why, mother, we are not made of wood, stone, glass, or lime!

MOTHER: That is true; yet some of these very things are in your body. Those who have studied the blood tell us it is iron, partly, that gives it its rich red color. You saw what a pretty red it is when you cut your finger to-day, Helen. Some of the things of which glass is made are in our hair and finger-nails, and our bones would soon become useless if we did not give them plenty of lime.

PERCY: But how do the iron and lime get inside of us? That is what I would like to know.

MOTHER: It does seem strange, but the houses we live in are made of what we eat. I once knew a young lady who thought she needed more iron in her blood, so she

put some nails in water and let them stay till it was full of iron rust, and then she drank it. Perhaps if she had thought her bones needed lime, she would have taken lime water; but this is not the proper way to get iron and lime "inside of us," as Percy says. We can not eat iron and lime, but grains and fruits can, and we eat the grains and fruits. Iron is found in apples, tomatoes, and strawberries. We get lime in wheat, peas, beans, and other foods. Have you noticed how the men are building that brick house across the street?

AMY: They put one brick on top of another, till thousands of them are used in making one house.

MOTHER: Well, that is the way the house we live in is built, only instead of bricks it is made up of what are called "cells." These cells are little bags filled with something that looks like jelly. They are so very small we can not see them at all unless we look through a glass which makes them seem much larger than they really are. Some of these powerful glasses make a speck of dust look as big as a large rock.

ELMER: I wish we could see some cells.

MOTHER: Here is a picture of some kinds. You see they are not all alike. Some are round, others are flat, or narrow, or long, or short; so you see they are of all shapes



and sizes. Some are so very tiny it would take three or four thousand to make a row an inch in length. Others are large enough so we can almost see them without a glass. Some have no color at all; others are light colored, and some are quite black. There are millions of cells in one drop of blood. Your skin seems like one piece, yet it, too, is made of layers of cells. If we should look through a strong glass at a tiny piece of potato, wheat, and some oatmeal, we would find they are all made of cells.

PERCY: And do the cells last as long as we live, mother?

MOTHER: No, they keep changing all the time. When we walk, run, talk, think, or do anything, some of these cells die, and others take their places. The new ones are just like the old; for if they were not, our appearance would so change that our best friends would not know us. While boys and girls are growing, they are putting many new cells into the house they live in. This is the reason auntie said the other day that she hardly knew you when she had not seen you for a year.

AMY: What are the cells made of, mother?

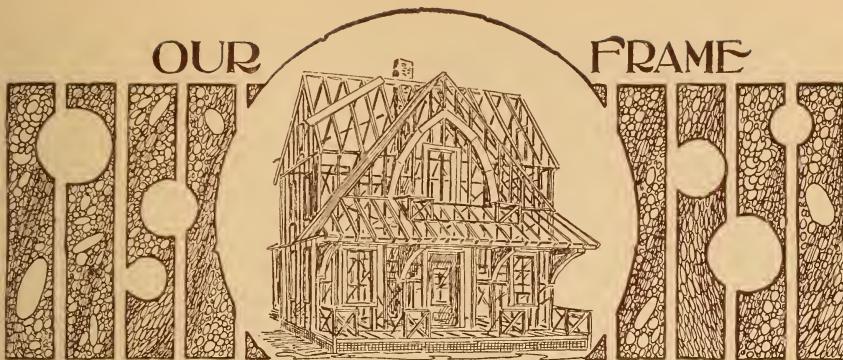
MOTHER: They are made of the food we eat. This shows we should be careful to put the very best things we can get into our body-building—I mean such as the body



can use, for what we *live* best is not always what is needed to build up and strengthen us. When you get hungry, that is the call of the body for food to make more cells, just as the mason calls, "More mortar," or, "More brick," so he can build his wall higher and stronger. If his mortar has but little lime, or is badly mixed, or he has only broken, badly-shaped brick, the wall will not be strong or beautiful. So if we give the body wrong kinds of food, it can not build such a house as you and I wish to live in.

HELEN: If moving about kills the cells, will they live longer if we keep still?

MOTHER: No, they are made to live just so long, and will die anyway. If we should not work or play, the dead cells would stay in the body, and make no end of mischief; but when we move about, it helps to carry them away, and new ones take their places. So you need not be afraid to run and jump, play and work; for the cells will take care to keep the house you live in all right, if you only give them the right kind of food, and not too much of it.

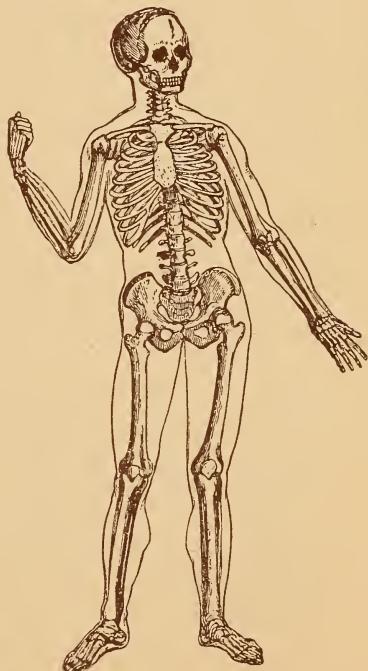


MOTHER: Every building must have a foundation and a frame of some kind to make it strong and give it shape. It is the same with the house we call our body. The frames of houses which men build are made of wood or iron; but the framework of the body is built of bones. Perhaps you have noticed that in the frames of buildings some pieces of timber are short, and some are long, and they are cut into many different shapes and sizes. So it is with the bones of the body. How many do you think it takes to make our frame?

HELEN: About fifty.

PERCY: I guess one hundred.

MOTHER: Not quite right, for there are over two hundred. All



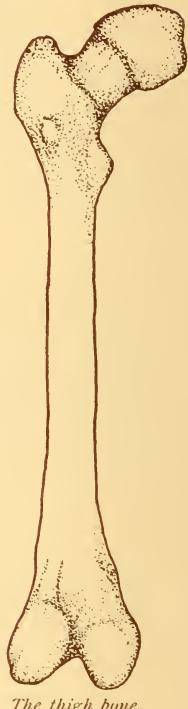
the bones together are called the skeleton. The frame of a house divides it into rooms, and on it are fastened the boards, laths, and shingles. In the house in which we live the flesh is fastened to the bones, and the whole is covered with skin. This framework also protects the curious rooms inside the trunk of the body. The largest bone in our frame is the leg bone, which reaches from the hip to the knee. It is called the *femur*, or thigh bone.

ELMER: Are the bones solid, mother?

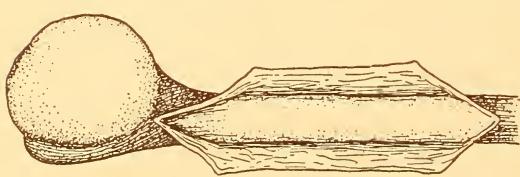
MOTHER: No; I have brought some pictures to show you how they look, for we can not see our own bones. One of them shows a bone that is sawed through lengthwise. You see the larger part at the end is full of little holes, like a sponge. This makes it light and strong. There is a hollow place in long bones filled with marrow. It also fills the spongy parts. Marrow is made of fat and cells.

You must not think that live bones look like one which has been lying out-of-doors a long time. Live bones are full of blood and have a pinkish color. They also have an outside skin, which can be peeled off, as you see in this picture.

AMY: What are the bones made of?

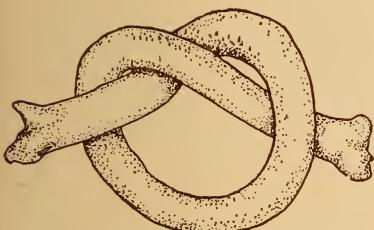


*The thigh bone.*

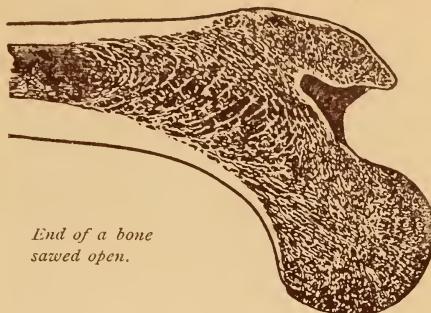


*A bone with the outside skin partly peeled off.*

MOTHER: Of animal and earthy matter. You can take the animal matter out of a bone by burning it in the fire. It will then be white and brittle. If you soak a bone in a kind of acid, the earthy matter will come out, and it will then be so soft you can tie it in a knot like this.



*A bone tied in a knot, after the earthy matter has been removed by an acid*



*End of a bone sawed open.*

When children are very young, their bones are soft and easily bent. This is because there is more animal than earthy matter. Children sometimes get hard falls, and their bones bend but do not break. Some, when very young, have legs that are bent like a bow. This is caused by standing and walking before the bones are strong enough to bear the weight of the body, or by disease.

In very old people the bones contain more earthy matter, and they break easily. Grand'fa-ther and grand'moth'er must be careful not to fall, for if they break a bone it will take a long time to heal.

When we take a baby, we should not lift him by his arms, and we must hold him so his bones will not grow out of shape. As he grows older, enough earthy matter will go into his bones to make them hard and strong.

PERCY: But you said there was lime in the bones, mother.



*"We should not lift him by his arms."*

MOTHER: Yes, the earthy matter is partly lime. The blood goes into the bones through tiny blood-vessels, and at all times of day and night the bones keep eating their breakfasts, dinners, and suppers of lime, which they find in the blood.

HELEN: What kind of food is best for the bones?

MOTHER: Good whole-wheat bread will furnish them all they need. Peas and beans are also good.

We will now look at the largest bones of our body frame, and see if we can learn something of their size and shape. We will not try to learn their hard names now, but will leave that till we are older.

We will begin with the bones of the head. They form what is called the skull. It is made of a number of bones, joined like two saws with the teeth hooked together. The "chin bone," or jaw bone, is one of the bones of the head.

Let me show you a picture of one of the most wonderful bones of the body. It is called the *spine*, or spinal column. Perhaps you can feel some little knobs or ridges in your back. The back-bone is made of twenty-four little bones piled one

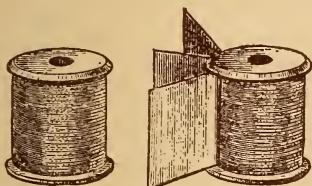


*Back-bone.*



*Skull.*

on top of another. Suppose you had twenty-four spools or reels of cotton, and you should run a string through them. When you hold them upright, you see you can bend them any way you wish, or keep them straight. Now if each spool had three wings like the one in the picture, they would be shaped very much like the bones that form the spine. The string is like the marrow, or "spinal cord," which passes through the spinal column from top to bottom.



*Reels of cotton.*

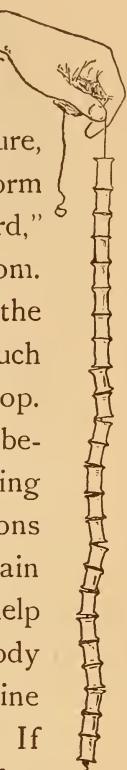
The bones which make up the lower part of the spine are much larger than those at the top. Little soft cushions are placed between all these bones, something like India-rubber. These cushions are to keep the body and brain

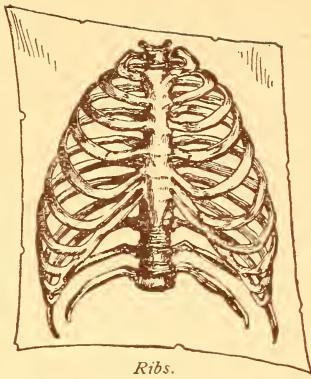
from being jarred, just as the springs in our carriage help you to ride easily. They also help us to bend the body backward or forward as we choose. You see if the spine was one long straight bone we could not bend at all. If we keep bending over while walking or working, after a time the cushions will get used to that position and we shall have a bad figure.

ELMER: The boy with his hands in his pockets does not have a good figure.

MOTHER: No; and if he were to go into the army, the first thing he would have to learn would be to "straighten up," and give his spinal column a chance to grow the right way.

Now we will look at the ribs. They are



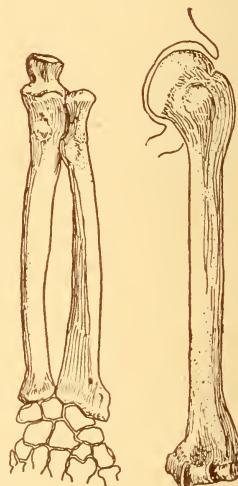


fastened to the spinal column at the back, and all but four are fastened to the breast-bone in front. There are twelve ribs on each side. There are two bones on the upper part of the back, which seem to dance every time you move your arm. These are the "shoulder blades." They are thin, flat bones, which help

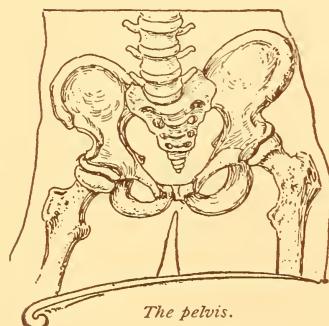
make the shoulder joint. You can feel two bones near your neck in front, which are called "collar bones." They are shaped much like the letter *f*, and serve to preserve the shape of the shoulders.

AMY: How many bones do we have in our arms, mother?

MOTHER: There are three in each arm,—one from the shoulder to the elbow, and two from the elbow to the wrist. There are a large number of bones in the wrist and hand



*Bones of the arm.*



The middle part of the body below the spinal column is called the pelvis. In this picture we see two curious bones. These are the hip bones. They are like the sills of a house, which, you know, are large and strong. There is a deep hole in each one as large as a toy teacup,

which holds the round head of the leg bone. There are three bones in each leg, the same as in the arm, one from the hip to the knee, and two from the knee to the ankle, besides a funny little bone or cap which covers the knee. Then we come to the ankle bones and bones of the feet.



*Bones of the  
leg and foot.*

HELEN: How do the bones stay in their proper places, mother? I should think they would fall apart.

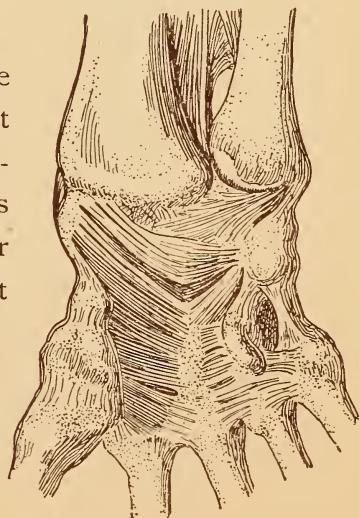
MOTHER: They would if they were not tied together.

ELMER: But what are they tied with?

MOTHER: With strong white bands or cords called lig'a-ments. Perhaps you have seen them on the leg of a chicken. When a joint is "sprained," that means the lig'a-ments are stretched or hurt in some way.

AMY: I should think the bones would get dry so they would squeak and rub hard against one another.

MOTHER: So they would if the Maker of the body-house had not put soft cushions of gristle or car'ti-lage between them. A soft, thin skin covers them, which pours "joint water" over the ends, and keeps them oiled just right, so they bend easily, and never squeak at all. You have seen the driver of an engine oiling it so it



*Wrist bones tied together.*

would run easily and not wear out; but think of a machine which will mend and oil itself for seventy years without wearing out! We have a most wonderful frame. The Bible says, "Thou hast fenced me with bones and sinews," and, "He knoweth our frame." Sometimes if we are ill a long time "the bones that were not seen stick out;" but when we are well, flesh covers them over so we hardly know we have any bones at all.

I once read a poem which I will repeat for you. It may help you to remember how many bones we have and where they are:—

"How many bones in the human head?  
Eight, my child, as I've often said.  
How many bones in the human spine?  
Twenty-six, like a climbing vine.  
How many bones in the human chest?  
Twenty-four ribs, and four of the rest.  
How many bones in the human arm?  
In each one, two in each forearm.  
How many bones in the human wrist?  
Eight in each if none are missed.  
How many bones in the fingers ten?  
Twenty-eight, and by joints they bend.  
How many bones in the human hip?  
One in each; like a dish they dip.  
How many bones in the human knees?  
One in each, the knee-pan, please.  
How many bones in the ankles strong?  
Seven in each, but none are long.  
How many bones in the toes, half a score?  
Twenty-eight, and there are no more.  
And now altogether these many bones fix,  
And they count in the body two hundred and six.  
And now and then a bone I should think  
That forms on a joint, or to fill up a chink,  
A ses'a-moid bone, or a wormian, we call,  
And now we may rest, for we've told them all."



## PROPER CARE OF THE BONES



ELEN: What's the matter with this house, mother? It seems to be all out of shape.

MOTHER: Perhaps it is very old and the frame has decayed so it leans far over to one side. It is unsafe to live in such houses, for they may tumble down if a strong wind comes

along. I have seen some body-houses which look very much like this to me. Here is one of them. See how this boy's shoulders are bent forward, and his whole body is wrong. If some disease, as consumption, should come along, like a strong wind, I fear his house would go down. Some one should say to him, "Straighten up, young man; throw your shoulders back, and you will look more manly and will live much longer."

PERCY: I have seen some boys at school bending over their desk when studying and writing. Is that good for the bones?

MOTHER: No; boys and girls should sit straight, stand



"See how this boy's shoulders are bent forward."

straight, and walk straight. If they do not, after a time the cushions between the bones in the spine will grow thicker on one side than on the other, and the back-bone will become crooked. You know soldiers stand erect and have fine forms.

How much better this man looks than the one who bends over! Do not form the habit of bending forward while sitting or standing. The one who made the body "made man upright," and in this he is different from the birds, beasts, or fishes.

ELMER: Can the bones be broken, mother?

MOTHER: Yes, and it is a sad thing for one to get broken, for it is very painful and takes a long time to heal. Children should be careful when jumping, when climbing trees, or when they go in any place where they may fall and break their bones.

Many persons give the bones of the feet a wrong shape by wearing tight boots or shoes. This causes "corns" to grow, which become very sore and painful. Perhaps you have heard how the Chinese women bind the feet of their little girls, and pinch them up, till they look more like clubs than like feet. The little one often cries and moans for days, but the mother and father pay no attention to her sufferings, for they think it would never do for *their* girl to have big feet.



"Boys should sit straight."

*Proper Care of the Bones.*

AMY: O, yes, mother; here is the picture of a woman with little feet! See her tiny shoes! They are no longer than a baby's. In the other picture you see one of her feet with all the toes doubled under. I don't see how she can walk at all.

HELEN: She must be silly. I think God knew how big to make our feet, as well as other parts of the body.

MOTHER: That is true, but the poor Chinese women do not know better, and they think Christian women are more foolish than Chinese women, and that they bind the bones in a way they themselves would never dream of doing.

HELEN: How, mother?

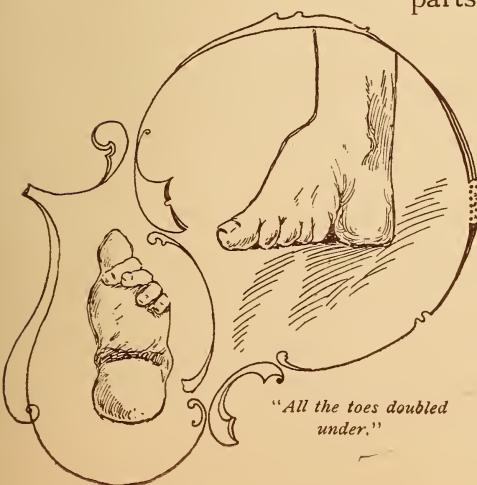
MOTHER: They say Christian women and girls squeeze the waist so tight it gives no room for some of the most important

parts of the body-house. I think you said, Helen, that God knew how big to make our feet. Do you think He knew how big to make the waist?

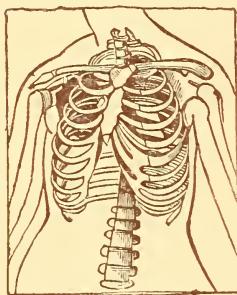
HELEN: I suppose so, but a small waist looks so much better than a large one.



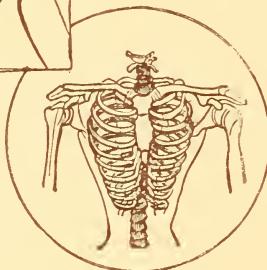
"See her tiny shoes!"



MOTHER: And the Chinese lady thinks her little feet are so much prettier than large ones, and she would rather suffer the pain, and hobble around all her life leaning on a servant, than be out of fashion. The Christian woman thinks a small waist is pretty, so she makes her clothes tight, and suffers all kinds of aches, rather than let the body remain as God made it. What is the difference? Here is a picture of the ribs as God made them, and here is one after the waist has been bound around with tight dresses.



"Here is a picture of the ribs as God made them, and here is one after the waist has been bound around with tight dresses."



If we saw a man putting iron bands around his house we would think the one who built it had made some mistake or it would not need anything

to hold it together. If people feel as though they would "fall to pieces," or if they have the backache, when their clothes are loose, it shows they have abused the muscles of the body and made weak that which God made strong.

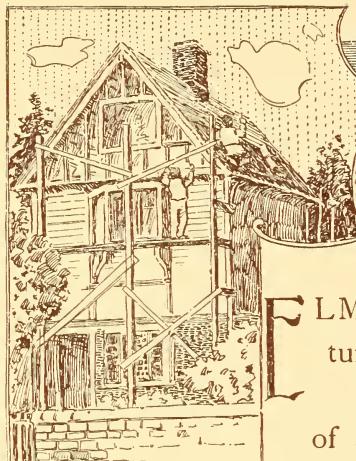
AMY: Is it wrong to wear tight clothing, mother?

MOTHER: Yes; it is very hurtful for girls to wear their dresses even a *little* tight, for the bones are soft and easily pressed out of place. We should wear warm, loose clothing on all parts of the body, and never, *never* squeeze the feet, waist, or any other part out of shape. Your arm would be very painful with a tight band around it, but that

would not do as much harm as tight shoes or tight bands around the waist. It is better to be healthy than to be in fashion.

You remember that the blood flows through the bones to feed and make them grow. Good blood will make them strong and healthy. Children sometimes have a disease called the "rickets." This shows that their bones are soft and need more lime. They should eat plenty of good brown bread.

No boy who wishes to grow large and strong should touch beer or tobacco. These poisons in the blood will make the bony framework of the body small and weak. The size of the man depends on his frame. Many boys are making their bodies and minds very small by smoking cigarettes. By using strong drink or tobacco the house we live in is defiled. The blood and all the body, inside and out, becomes soiled and filthy. "If any man defile the temple of God, him shall God destroy; for the temple of God is holy, which temple ye are." If one should go into a beautiful temple and break the windows, stain the white marble walls, and cover the floor with filth, we would think they did wrong. How much worse to destroy the wonderful, living temple which God Himself has built!



## THE WALLS OF OUR HOUSE

ELMER: I don't like to look at pictures of bones and skeletons, mother.

MOTHER: No; like the framework of a house, they are not pretty, and yet they give shape to what we *do* like to see. When your father built this house, do you remember how he made the walls?

PERCY: The spaces between the timbers were filled with bricks, so there was a solid wall.

MOTHER: Well, it is that way in the body-house. The bones are all covered over and filled in between with muscles. It is these which make the cheeks so plump, and give the whole body its round, pleasing form. It is the muscles which move the bones.

AMY: But what is a muscle?

MOTHER: You have seen lean meat, have you not? That is muscle. When boiled it seems to be made up of little bundles of tiny threads of fibers, each wrapped in its own thin blanket. Here is a picture of a muscle. These

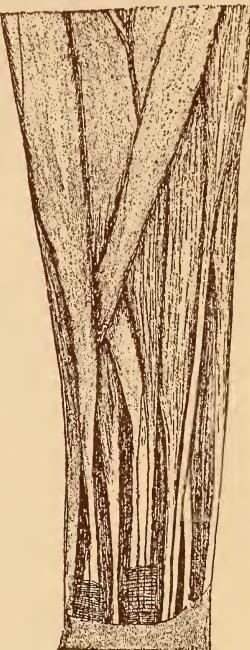
small threads are not twisted together, but are laid side by side. It takes one thousand seven hundred of them to make a muscle an inch thick in children, but in grown people it takes only five hundred.

HELEN: Are the muscles fastened to the bones, mother?

MOTHER: Yes; many muscles are joined to the bones by strong cords, called tendons. The picture shows the muscles of the arm, with their tapering tendons at the wrist. You see our muscles end in these little ropes, or cords, to save room. What a large wrist we would have if the muscles were as large there as in the arm! Now grasp your right arm and open and shut the fingers of your right hand. What do you feel?

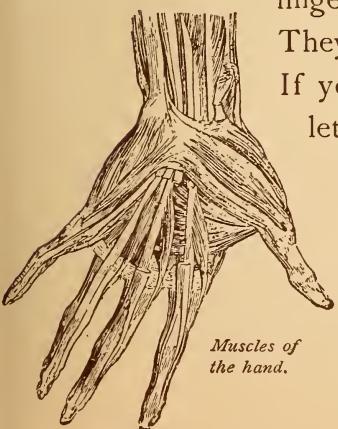
PERCY: The flesh moves.

MOTHER: That is because the muscles of your arm pull back when you shut your



*"Muscles of the arm, with their tapering tendons at the wrist."*

fingers, and stretch out when you open them. They are some like this piece of India rubber. If you pull it out, it gets thinner, and if you let go, it snaps back and becomes short and thick. Perhaps you have seen the leg of a fowl cut off at the joint, and know if you take hold of the strong cords you can move the toes up or down. So the muscles and tendons move in our feet



*Muscles of the hand.*

and hands in the same way. Every step we take, one muscle lifts the toes in front, and another pulls up the heel behind.

If a person sits still much of the time, he will have weak, small muscles, because he does not use them. That is one reason why people are so very weak after being ill. When we use our muscles, they grow large and strong. You have seen the blacksmith's arm and noticed how large and strong it is. To use our muscles does not wear them out, but does them good.

ELMER: I should think the muscles were our servants, to do whatever we wish done.

MOTHER: Yes; and better servants no person ever had. If the brain says, "I want a book," the muscles of the legs carry the body where the book is; those of the eye look for it; those in the arm and hand lift it; and the master of the house gets what he wants. We can not move or do anything without these servants to help us.

AMY: It must take a good many to serve one who wants as many things as I do.

HELEN: I read not long ago there were about five hundred of them, big and little, and that they have many shapes and sizes.

MOTHER: That is true; and one who has so many servants as that, ought to



be able to wait on himself, and help other people, too. Some of these servants, those in the feet, legs, arms, and hands, wait to be told what to do. Others go to work and keep at it without telling, and they will work even though the one living in the house should tell them to stop. When you wink, you do it without thinking, for the little muscles over the eye know it is their duty to keep the eye clean and bright, and they keep at their work even though you should tell them to keep still. Your heart is a hollow muscle, and it works faithfully night and day as long as you live. The stomach is made of muscles, which take care of your breakfast and dinner without a word from you; and there are many more of these faithful servants who work to keep our house in order.

PERCY: But don't the muscles get tired, mother?

MOTHER: Yes; and when they ask for rest, we should give it to them. We do not need to sit still and do nothing in order to rest the muscles. If we have been studying, it rests them to sweep the floor, hoe in the garden, or work or play. If we have been playing or working hard, it rests us to sit down and read or study. Change of work is better than to be idle. Walking, running, or working makes the muscles grow large and strong.

We must also have plenty of sleep. A boy or girl who works and plays out in the fresh air and sunshine, will be strong and well, while those who sit in the house will be weak and sickly. But it is not best to work the muscles till they are "all tired out," for using them too much is nearly as bad as not using them at all.

HELEN: I read a story not long ago about the king of a tribe in Africa. He did not move about or work, so he became ill. He sent for his doctor, who saw that all he needed was to use his muscles, but he did not dare tell him to go to work, so he made two large clubs, and told the king the medicine which would make him well was in the handles, and if he would swing the clubs each day till his body was moist, the medicine would go from the clubs



*"Giving his muscles exercise."*

into his hands, and make him strong and well. The king did as the doctor said. Each day he swung his clubs in the open air, and he soon became strong. He thought he had a very skilful doctor, and praised him for his great cure.

MOTHER: And yet it was only giving his muscles exercise which helped him so much. This shows the importance of using them.

ELMER: Do we need anything else to make the muscles strong, mother?

MOTHER: Yes; one of the best things to make them strong is plenty of good, plain food. As the muscles are used, they wear out, and must have new timber to build themselves up. You would think it strange if a carpenter brought brick, mortar, glass, and timber to mend a house, and without his help each part should take just what it needed, putting in half a dozen bricks in the chimney, a board in the floor, a new pane of glass in the window, and some mortar in the right place. But this is what the house we live in is doing day and night. When we sleep, the mending goes on better than when we are awake, and it is done so well we do not hear or think of the busy little workmen inside. All they ask is the right kind of food, not too much or too little of it, and they will take the right thing to the right place, and keep the house in good order.

HELEN: I have read of some men "training" their muscles. What did they do to train them?

MOTHER: They were very careful to take only that kind of food which is good for the muscles. They can not use wine, beer, whisky, or tobacco, for these make bad blood and weak muscles. Then they work all they can bear, but not too much.

PERCY: But Mr. Blank says it makes him strong to have a glass of beer or whisky.

AMY: And Mr. Blank is such a big man he must have strong muscles.

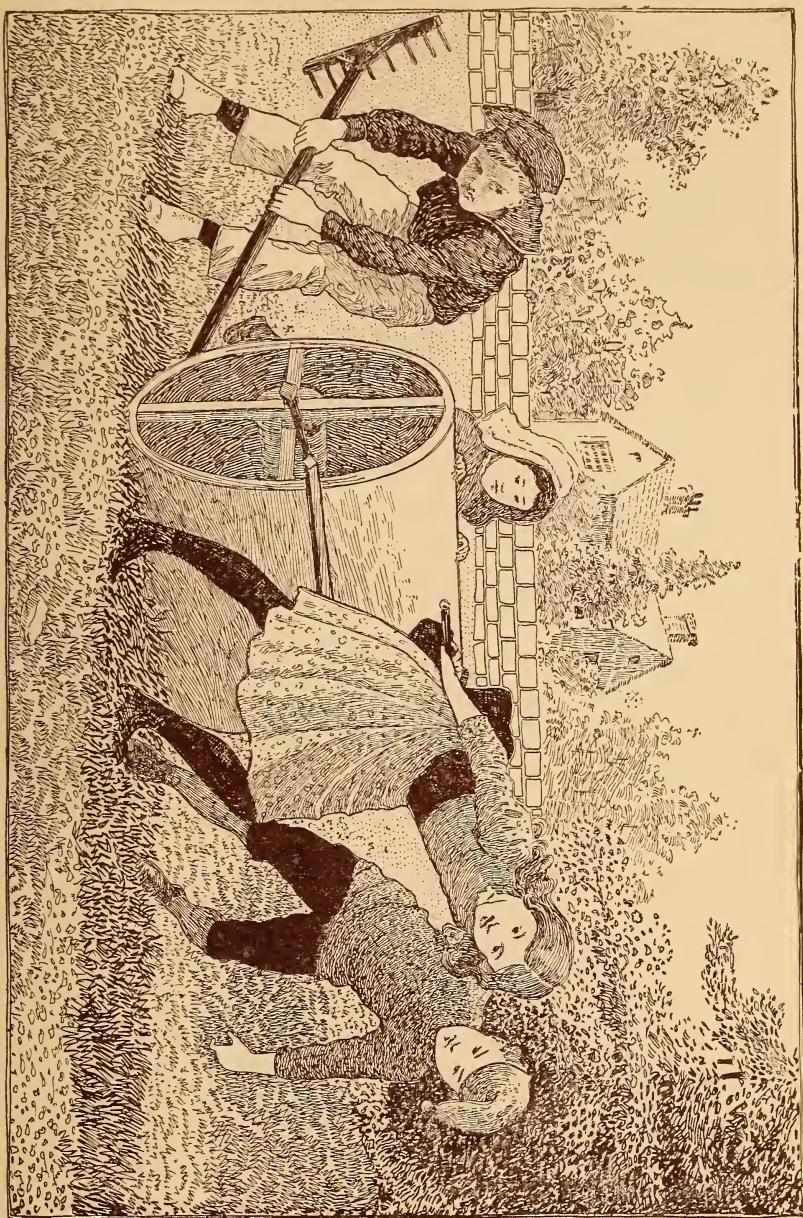
MOTHER: To be big is not to be strong. It is well to have some soft cushions of fat between the muscles, but, as a rule, those who have much fat are not as strong and well as those who have less fat and more muscle. Whisky does not make the muscles grow, nor does it make any one strong. Would you like to have me tell you why this is so?

ELMER: Please do, mother.

MOTHER: Do you remember when we were driving up that long hill yesterday how tired the horse seemed till he was struck with a whip? After that he went much faster, and did not seem tired at all for a little while. The whip was a stim'u-lant to the horse. Whisky and beer are stim'u-lants, too. Mr. Blank works till his muscles are tired, and then, instead of giving them food and rest, he gives them beer, which makes him think he is stronger when he is really weaker. The whip made the horse forget he was tired, but don't you think if he had rested an hour and eaten some good oats and sweet hay, he would have had more strength than he had after he was struck with the whip?

PERCY: I think so; for if we had given the horse no rest and had kept whipping him, after a time he could not work at all.

MOTHER: And that is just what happens to the man who drinks beer. Perhaps you have seen a man stumbling along the sidewalk. He is first on one side and then on the other, and we say he is drunk. This means that the alcohol he has taken has poisoned his body so the muscles



"LIFT, BROTHER, LIFT."

will not do their work properly. The man can not make his servants do as he tells them; for he has made them all sick, and *he* is sick. It is a sad sight to see any one drink this poison, and make himself helpless.

AMY: I never knew before that strong drink hurt the muscles.

MOTHER: And there is another poison about as bad for them, and that is tobacco. If a boy wishes to grow to be a large, noble man, with an active mind, a clean mouth, sweet breath, clear eyes, and strong muscles, he will not touch tobacco. In some countries there is a law against boys using it, because it does them so much harm. Tobacco makes the muscles weak and unsteady. Like alcohol, it makes a person *feel* stronger when he is really weaker.



MOTHER: After your father had filled the framework of his house with bricks, can you tell me, Elmer, how the outside was covered?

ELMER: The walls were covered on the outside with boards, and the roof with shingles.

MOTHER: That would do very well for a wooden house, but for one that can walk, run, jump, and skip about, such a stiff covering would be sadly out of place. We sometimes smile because the snail carries his house around on his back; but the house we live in must move itself and carry the one who lives in it. How are boards and shingles fastened onto common houses so they will stay?

PERCY: With nails.

MOTHER: Just think of driving nails into muscles! Yet you see our body-houses must have some kind of a covering. It must be thin and strong and one that will stretch. Look at your hands and see if they do not have the very best covering that could be made. Pinch up the skin, and see how thin it is, and yet how well it fits every part of the body.

AMY: And the skin stretches, mother. See, I can bend my knee and elbow, and move my fingers as I please.

MOTHER: Yes, it is like a close-fitting garment. What we call the skin is really *two* skins. You see I can put a pin through the outer skin in the palm of my hand, and I feel no pain, and you see no blood.

HELEN: Isn't that all the skin we have?

MOTHER: No; for under this thick, outer skin is what is called the true skin. It has such fine blood-vessels that if you could see them, they would look like fine network. If you should prick this *inner* skin it would hurt, and the blood would flow. This shows it has nerves as well as blood. Under the true skin is a layer of fat. This is like a warm woolen garment to keep the body warm. Between the outer skin and the true skin there is some jelly-like coloring matter, which gives it color.

HELEN: Is that why some persons are very dark and others are light, mother?

MOTHER: Yes; your true skin is just the same color as that of the negro and the Indian. The coloring matter under the outer skin is all that makes the difference. This outer covering is made of little horny scales laid one over another, much as a roof might be if it had ten or twelve layers of shingles. The outer scales keep wearing away all the time, and new ones take their places. You know a snake sheds its skin and crawls away with a new one. We shed our skin, too, little by little, but the scales are so small we can hardly see them. If you should wear your under-clothing several days, and then shake it in the

sunlight, you would see little scales floating about in the air like dust.

AMY: Isn't the skin thicker in some parts of the body than others?

MOTHER: Yes; on the palms of your hands and the soles of your feet it is quite thick, while on the lips and some other parts of the body it is very thin indeed. Have you noticed how the skin looks if it is scratched and then heals up?

ELMER: Just the same as it did before.

MOTHER: But if there is a deep cut or a severe burn, how does it look after it heals?

HELEN: There is a scar left.

MOTHER: This shows that the outer skin and the coloring matter will come back as they were before if they are hurt; but when the true skin is injured, the blood makes a kind of patch, which we call a scar. Another curious thing about the true skin is that it has tiny muscles, and when the body is cold, they draw up and make little hillocks, which we call "goose-flesh."

But the skin is very useful, besides being a covering for the body. When we were getting dinner to-day, what did we do with the potato parings and other things we did not wish to keep?

PERCY: We put them in the garbage box.

MOTHER: Why did we do that?

AMY: Because they were not fit for food.

MOTHER: And what do we call that which we do not wish to keep, and so throw away?

HELEN: We call it *waste*.

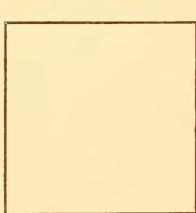
MOTHER: What do we do with waste matter? Do we let it stay in the house?

ELMER: No; we throw it away.

MOTHER: Why would it not be best to let it remain in the house?

PERCY: Because it would decay and make us ill.

MOTHER: Well, it is the same way in the house we live in. All the food we eat can not be used, and some parts of the body are wearing out all the time. If the waste stayed inside, we should become ill. In the skin there are thousands and millions of little tubes called *pores*, which help carry away the waste. If you become very warm, you say you are "sweating," or per-spir'ing; that is, drops of water come out all over your body. They come through the pores, or little holes in the skin. But we sweat, or perspire, all the time, whether we can see it or not. If the pores of the skin were stopped up, a person would soon die. If the skin is very dirty, the sweat can not get out, and it stays inside.



"One inch square."

To show you how many pores there are, you may look at this little piece of paper, which is just one inch square. In such a space on the limbs there are *five hundred* pores. On the trunk of the body, forehead, back of the hand, and on the foot, *one thousand*; and on the palm of the hand and sole of the foot there are *twenty-seven hundred*. Each of these little waste-pipes is one-fifth of an inch long. If they were placed one after another, wise men tell us we

would have two or three miles, and perhaps even more, of waste-pipes for the body. What do you suppose would happen if they were choked up, and all the waste should remain inside?

AMY: We would become ill.

MOTHER: We surely would. Sometimes we call it "taking cold." If we cool off too quickly when warm, or get our clothes wet and do not put on dry ones, or in a warm spring day put on thin clothes, all these things stop the waste-pipes, and we "catch cold," have a sore throat, and we may have a fever, which shows that the waste is being burned up inside; and the house becomes burning hot.

PERCY: Then the pores must be kept open all the time if we would be well.

MOTHER: Yes; but there is another way than those I have told you by which they get choked up. The waste-pipes leave the dirt they carry out of the body on the skin, for that is as far as they can carry it. The master of the house must see that the skin is kept clean, so the pipes will not be choked.

ELMER: Then he ought to wash it often.

MOTHER: I think so, and not only some parts, but the whole house needs a good scrubbing with soap and warm water as often as twice a week, and if he will then take a bath of some kind each day, that will keep the skin clean and healthy. Even rubbing the whole body once a day with a damp towel and then with a dry one, will keep the waste-pipes open, so they can do good work, if there is a

thorough scrubbing twice a week, as I have said. We should also be careful to wear clean clothing next to the

skin, for there is about a quart of waste matter carried through the pores every day. Can you think of any other ways in which the skin is useful besides being a covering and carrying away the waste?



*"A thorough scrubbing."*

MOTHER: Yes, we learn many things by this sense. You know when you show anything to a baby it stretches out its little hands to "feel" of the object. How do you think such poisons as alcohol and tobacco affect this covering of the body?

HELEN: It helps us *feel* different objects. Those who are blind learn to do many useful things by the sense of touch.

AMY: They must make more waste in the body, and so the skin has more to do.

PERCY: I think it must fill it full of poison.

ELMER: Does alcohol make the skin look red, mother?

MOTHER: Yes; that is why a man who drinks beer or other drinks containing alcohol, has such a red face. Sometimes his nose is called a "rum blossom." The alcohol makes the blood-vessels larger than they should be, and so his nose and face become very red. Bad food is also hurtful to the skin, for it can not be clear and healthy if the blood is not clean. Pimples and sores are caused by bad blood, and they show that better food is needed in the body.

AMY: But you haven't told us what the roof of the body house is, mother.

MOTHER: Have you ever seen a house with a thatched roof—I mean one covered with hay or straw instead of iron or shingles?

ELMER: Oh, yes, we saw some when we were out in the country!

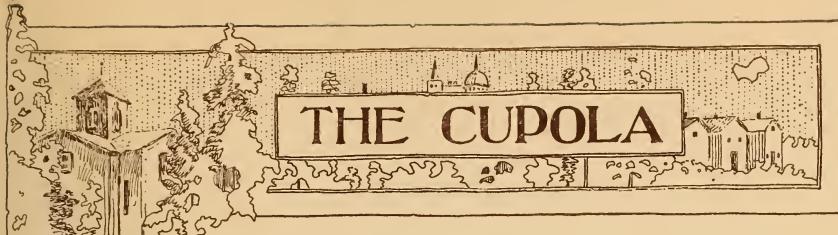
MOTHER: Well, the roof of the house we live in is more like that than like a shingled roof.

PERCY: Now I know what you mean: the body-house has a roof of hair.

MOTHER: And it is a most beautiful covering, too. Each hair grows in a little pocket, which is furnished with a tiny bag of coloring matter and a bottle of hair oil. These give color to the hair, and keep it soft and smooth. If we put much oil on the hair, it causes the oil bottles in

the skin to dry up. There is no dressing so good as that which is made in the skin. We should brush and comb the hair carefully, to keep it shining and healthy.

People sometimes lose this beautiful thatch, and we say they are "bald-headed." In very old people it turns gray or white, and it is like a beautiful, silvery crown. The Bible says that "a hoary head is a crown of glory." Very small, new houses sometimes have no thatch at all, but as they get larger and older, one grows, and at first it is fine as softest silk. The Bible says that even the hairs of our head are all numbered or counted by our heavenly Father. From this we may see how much He loves and cares for us.



ELMER: Have you seen the cupola on the new house in the next street, mother?

MOTHER: Yes; it is very pretty. It is quite common now to build cupolas on large houses. But I was thinking, as you came in, of the cupola, or tower, on the house we live in. Can you think what it is?

PERCY: It must be the head.

MOTHER: That is right, but, unlike the cupola of a common house, which is used but little, the head is the best room of all, and the others would be of little worth without it. It is here we find the master, the one who gives orders to his servants, the muscles, and directs all they do.

In large business houses you sometimes see a room having on the door the word "Office," and you know if you have business there, that is the place for you to go to find the manager. We might call the head the office room of the body, for it is here the manager is always found if at home.

While you know there is a master to our house, yet you can not see him. He may peep through the windows, you may hear him speak, and you can talk to him. Perhaps you will love him very much, or you may dislike to be near him. You may see his work, but still you can not see *him*.

AMY: You must mean that the mind is master of the body, is it not, mother?

MOTHER: It surely *ought* to be; but I am sorry to say that in some houses the servants get the master to do as they like, and then the body-house has a bad time, for "whether one member suffer, all the members suffer with it." The apostle Paul said, "I keep under my body, and bring it into subjection," and this is the work given to the master of every body-house. The mind should know what is good for the body, and, though the servants may ask many times to do as they like, he should firmly say, "*No*," whenever they wish to do wrong. Can you tell what the mind is?

HELEN: It is the part of me that thinks and remembers.

MOTHER: And it also *wills*, that is, we "make up our mind," as we say. Why do you think our mind is in the head?

PERCY: Why, if our hands, arms, or feet were cut off, we could still think.

MOTHER: Do you remember the name of the organ inside the head with which we think?

AMY: The brain.

MOTHER: Yes; and since the brain is such an important part of the body, it is put in the strongest room of all. It sometimes becomes ill if not used right, so we should learn how to keep it well. The worst sickness in the world is mind sickness, and it is hardest to cure.

The brain has six coverings in all. The outside coverings are the hair and scalp, or skin. Then we find the

strong bones, fitted closely together with saw-teeth edges. Inside the bones the brain has three coverings: first, a tough, strong skin; then a very thin covering, hardly thicker than a spider's web; and the third is made up of many little blood-vessels, which feed the brain.

AMY: I wish we could see how the brain looks, mother.

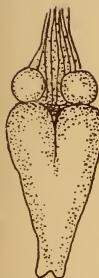
PERCY: I have seen brains at the butcher shops. Do ours look like that?

MOTHER: Yes, quite the same. You have all seen the marrow in the bones. The brain looks some like that, too. It is made of jelly-like matter, and seems to be all crumpled up, so it is full of ridges and creases, as you see in this picture. It is said a baby's brain is quite smooth, but the more a person thinks, the more ridges and furrows his brain will have and the deeper they are. A frog's brain is smooth, like this.

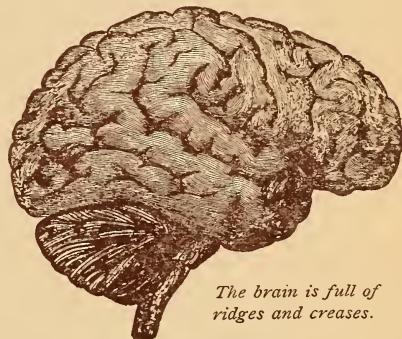
ELMER: But I don't see how the brain thinks.

MOTHER: That is one of the things we can never understand. God gave men life, and when we are alive we think. "In Him we live, and move, and have our being," and to be able to think is one of the best gifts that comes with life. It is the life God gives us which makes the body-house worth more than the most costly palace in the world.

If we look carefully into the brain, we see that the outside is gray, and the inside is white. Wise men tell us this matter is made of cells, called nerve cells, or brain cells.



"A frog's  
brain is  
smooth."



*The brain is full of  
ridges and creases.*

The gray matter tells the muscles what to do, and the white part sends the orders to all parts of the body through the nerves.

ELMER: Have we more than one brain, mother?

MOTHER: I might say no, and yes. It is really one, and yet it is in several parts. One is the big brain, which is found above the ears in the top of the head. It is with this part we think and reason. Then there is a little brain, in the back part of the head under the large brain. It is about as big as a medium-sized orange. Each brain has two parts, a right and left half, so we really have two brains. It might be said we are "left brained" when we are "right handed," for the right hand is ruled by the left half of the brain.

AMY: How large is the brain, mother?

MOTHER: That of a man weighs about three pounds. An elephant's weighs eight or ten pounds, and that is the heaviest of any we know. The brain must be used, the same as the muscles, if we would have it do its work well. It makes it grow and does it good when we study and think. As it was made to think about something, we should give it good things to think about. If it is lazy, it will lose the power to work, just as the muscles do, and if used, it will grow stronger and can do still harder work.

HELEN: And does it ever need rest?

MOTHER: Certainly; it must rest, the same as the muscles. People sometimes hurt the brain by working it very hard and letting the muscles do nothing.

PERCY: But how can it rest? We can't stop thinking.

MOTHER: No; we think of something all the time we are awake, so the best way to rest the brain is to take plenty of sleep. Sometimes a part of it keeps awake while the body is asleep, and then we say we had a dream. Another way to rest the mind is to set the muscles at work after we have been reading or studying. Boys and girls in school should spend part of each day working, or in some way using their muscles in the open air.

ELMER: I should think the master of the body-house would want to look outside of his little room sometimes.

MOTHER: Yes, he does; and the cupola of which we have been talking has two wonderful windows.

AMY: Oh, I know what they are! They are our eyes.

MOTHER: Yes, and through them the master looks out and sees all that is passing around him.

HELEN: I should think there ought to be windows on all sides of his room. He can look out only one way.

MOTHER: But you see this cupola is placed on top of a tower we call the neck, which turns easily and quickly, and, besides, the whole house can "face about" in an instant, so he can look other ways than straight ahead, with no trouble.

PERCY: Why do you call the brain the master of the house, mother?

MOTHER: Because it tells the feet, hands, tongue, eyes, and all other parts of the body what to do, and they obey it. Sometimes we find a bad master in one of these beautiful houses. He tells the feet to go to a saloon. He tells the tongue to ask for beer and other kinds of strong drink.

He tells the hand to lift the glass to his lips. It may be he knows he is taking poison into the house, which will make his servants, the muscles, unfit for work. Perhaps he knows, too, that the drink will hurt himself more than any other part of the body-house, for it puts him to sleep when he ought to be awake telling his servants what to do, yet he does it, and often suffers all the rest of his life for his folly.

ELMER: Does alcohol hurt the brain?

MOTHER: Surely it does. It makes the blood impure, so it can not furnish good food for the brain. It causes more blood to go to the head than ought to be there. It makes people mad, crazy, or insane.

Sometimes it brings that awful disease, delirium tremens, and then the poor master thinks his best friends are his enemies, that serpents and horrible creatures are crawling over his body, and he dies a terrible death, and goes into a drunkard's grave. He ruins the house God gave him to live in, and finds it is true that "at the last it biteth like a serpent, and stingeth like an adder."

Children, never touch these poison drinks.

"Never put them in your mouth,  
To steal away your brains."



## OUR TELEPHONE SYSTEM

MERCY: Ting-a-ling! There's the telephone bell. How strange it seems to talk to people, and hear them talk, when they are miles away!

MOTHER: But the most wonderful telephone in the world is found in the house we live in.

HELEN: Why, mother, you don't mean to say we have wires all through our bodies, do you?

MOTHER: Not wires, but something that answers the same purpose, only it is far more perfect. You know the brain is the master of the house, and there are hundreds of muscles waiting to do what he bids them. But the brain is upstairs, safe in his own strong little room. How can he tell the fingers how to work, and the feet where to walk?

AMY: Please tell us, mother. I'm sure I don't know.

MOTHER: Well, instead of wires we have

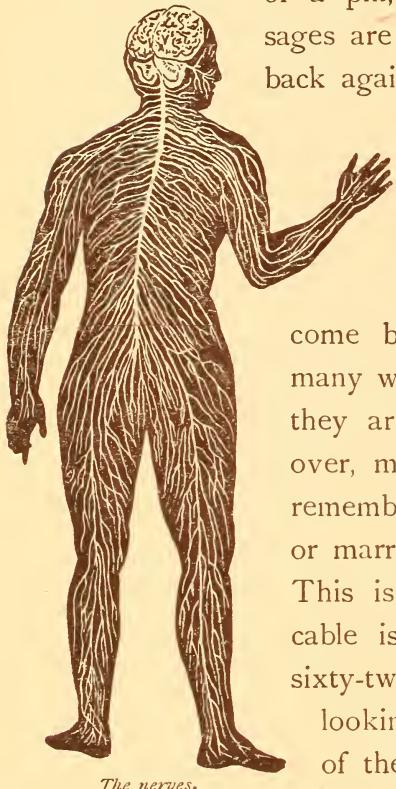
thousands of little lines called *nerves*, reaching from the brain to every part of the body. They are made of matter like that in the brain, and they are so close together that you can touch no place on your body, even with the point of a pin, without touching a nerve. Messages are sent over them to the brain, and back again to the muscles. With the nerves we *feel*. We call it the sense of touch.

We might call the brain the "central office," from which messages are sent, and where they come back. In the city you have seen many wires stretched on poles. Sometimes they are bound up together and covered over, making a cable like a big rope. You remember I told you there is a spinal cord or marrow running through your backbone. This is made up of many nerves, as the cable is made of many wires. There are sixty-two branch lines coiled up in it. By looking at the bottom part of the picture of the brain you will see where this large cable enters the central office. Really,

the top part of the cord is a little brain itself, with a long name, which we will not trouble now to learn.

ELMER: If all the nerves come from the backbone, how do any get to the face?

MOTHER: There are some little holes in the skull, and



*The nerves.*

through these twenty-four branch lines pass, carrying the nerves all over the face and head. One pair find their way to the nose, and they tell the master of the house how things smell. Another pair reach to the eyes, and tell him how things look. They are nerves of sight. There are three pairs to tell the muscles of the eye how to move. One pair passes to the ears, and are called nerves of hearing. The others are scattered all over the face, passing to the teeth, tongue, and throat, and even to other parts of the body. This picture shows the brain as the main office, the cord or cable in the back-bone, and how the branches extend to all parts of the body. Still there are thousands of smaller lines which can not be seen at all.

HELEN: And what sends the messages to and from the brain over the nerves, mother?

MOTHER: The power which sends them is called "nerve force," though what it is even the wisest men do not know. We can stop it by pressing on the nerves, just as you can stop the current of the telegraph. We sometimes say that our leg or arm is "asleep." If we try to move, it gives us pain, or it may be we can not move at all. One nerve runs along the back side of the arm over the elbow. If we hit the elbow, it makes the arm and hand feel numb. We say the "funny bone," or the "crazy bone," is hurt, but it is not the bone at all, but the nerve.

AMY: I heard a lady who is ill say she wished she had no nerves. Why do we have them?

MOTHER: I think we have already learned how useful they are to carry messages for us. We would be quite

helpless without them, for the brain sends word over them every time we move any part of the body. Another reason is they watch for our welfare. If we are cut or burned, it gives us pain. We don't like the pain, so we are more careful when we use sharp tools or go near the fire.

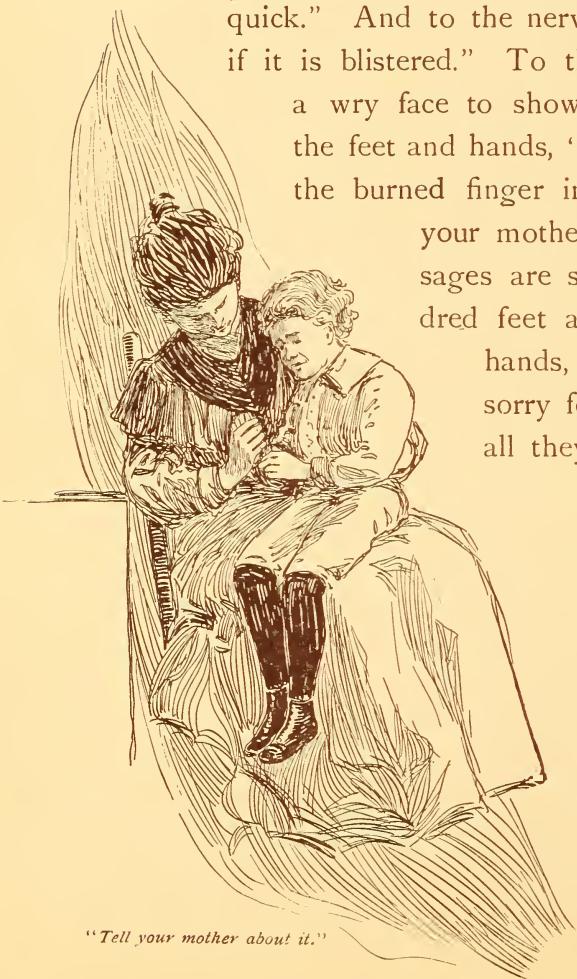
If you touch the hot stove, you jerk away your hand. "I'm burnt," the finger sends word to the brain. The brain sends back the message, "Get off the stove, quick." And to the nerves of the eye it says, "See if it is blistered." To the face muscles, "Make up a wry face to show how badly it hurts." To the feet and hands, "Get some cold water to put the burned finger in." To the tongue, "Tell your mother about it." All these messages are sent at the rate of one hundred feet a second, and the eye, face, hands, feet, and tongue all feel sorry for the burnt finger, and do all they can to help it.

Every part of the body, the bones, muscles, stomach, heart, and lungs, has these useful little nerves to let the master know when anything is wrong with them.

ELMER: Do the nerves ever get sick, mother?

MOTHER: Oh, yes, very often! Sometimes they are

"Tell your mother about it."



so ill that no message can pass over them to the brain. Then we say the person is paralyzed. A lady had her limbs paralyzed. She could not walk, or move her feet at all. One day she took a foot bath. She could not tell whether the water was cold or hot, and soon the nurse found the skin on her feet blistered, because the water was too warm. The nerves were dead, and she felt no pain at all. Pain is hard to bear, but if there were no pain, the house we live in would soon be ruined. It tells us when danger is near, and because we do not like the pain, we take care of the body. The nerves are more wonderful than any telephone or telegraph, and when you get older, you must learn all you can about them.

HELEN: The brain must have a lot of work looking after the nerves and sending so many messages over them. I don't see how it can think of anything else.

MOTHER: Perhaps I can explain it to you. Suppose there is a family who have much to do. The father does the hardest work of all. When his wife sees how much he has to do, she tries to help him all she can, so she does many things without saying anything to her husband about it. They have one son, a strong, upright young man, and he takes part of the work, because he wishes to help his parents. We will call the large brain the father, because it does so much of our thinking. As you say, Helen, if he looked after all parts of the body, there would be but little time for study and helping other people. Besides, he falls asleep sometimes, so the little brain, which we will call his wife, takes the work that must

be done *all* the time, as good wives and mothers do, such as keeping the heart beating, the lungs breathing, and other parts of the body at work which can not stop to rest. Then there is the spinal cord, which we will call the son, and he takes charge of the feet and hands when they have common kinds of work to do. When you went to school this morning, I saw you reading a book while you walked. Your brain did not send word to each muscle what to do every time you took a step, but you walked "without thinking," as we say. The spinal cord took charge of your feet, so we know it can do an easy kind of thinking. When you were learning to skate, Percy, you kept thinking all the time how to move your feet and what to do to keep from falling. But after you had learned how, Father Brain gave his son, Spinal Cord, charge of you, and he thinks of something else most of the time while you skate. It is the same with anything we have learned to do well by doing it over and over, such as playing the piano, riding a bicycle, and many other things we keep doing again and again.

PERCY: Does alcohol harm the nerves, mother?

MOTHER: Yes, indeed. Alcohol seems to like the nerves better than any other part of the body, and it does them more harm than any other, except the brain. When alcohol touches a nerve, it dries it up and makes it hard, as though it had been burned. It causes that dreadful disease, paralysis, of which I have told you. The nerves get so stupid and sleepy they do not know what the brain says to them. They can not tell the muscles what to do, and

this is why a drunken man staggers. A drunkard has trembling hands, because the poison has made his nerves sick. Sometimes those wonderful nerves of the eye and ear tell him lies, and he believes what they say. Sometimes the poor nerves and brain are so nearly dead that the man falls down, and people say he is "dead drunk."

ELMER: I have heard people say tobacco was good for

the nerves, that it made them feel rested, and they could think better.

MOTHER: Tobacco is a poison, and is as hurtful to the nerves as alcohol. One who uses it thinks he is rested, but



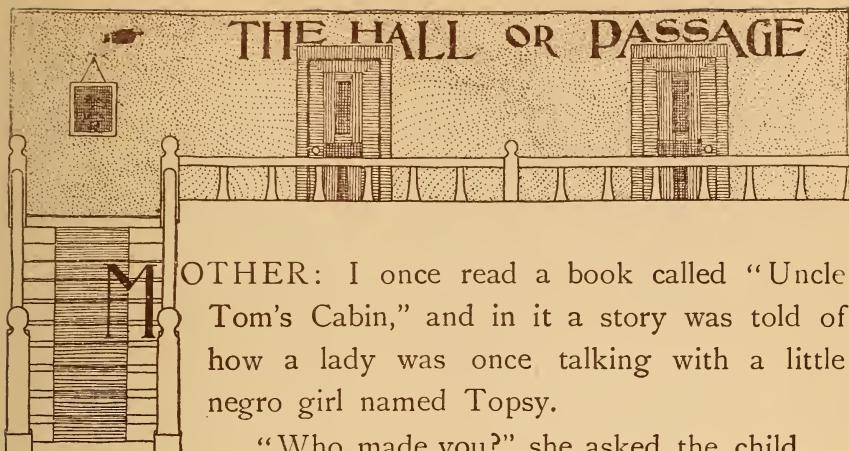
"The little boy is forming a bad habit."

the reason he feels so is because the poison has put his nerves to sleep. Tobacco also creates an appetite for strong drinks. It is very bad for boys to use tobacco in any way.

AMY: What should we do to keep the nerves well?

MOTHER: Give them good food, plenty of fresh air, and no poisons of any kind. They must also have rest to keep them strong. It helps the nerves to be happy and cheerful. The little boy in this picture is forming a bad habit, which will not only make him unhappy but unhealthy.

Hateful, unpleasant thoughts make poisons in the body and cause sickness in the brain and nerves. People sometimes drop dead by becoming very angry. "A merry heart doeth good like a medicine." Yes, it is much better than any medicine men can make. Children should form the habit of being happy and hopeful. The brain and nerves will form good or bad habits, and the master of the body-house should use all his power to have them good instead of bad. Every evil habit leaves a scar on the brain.



MOTHER: I once read a book called "Uncle Tom's Cabin," and in it a story was told of how a lady was once talking with a little negro girl named Topsy.

"Who made you?" she asked the child.

"Nobody, as I knows on. *I s'pect I grow'd*," was the answer.

Now we know God made the body-houses we live in, for "it is He that hath made us, and not we ourselves;" yet in one way Topsy was right, for we all "grow'd." God made us grow, and it is He only that can make anything grow.

ELMER: But we must have food to make us grow.

MOTHER: Yes, everything that has life must have food of some kind. You remember I told you we had iron, lime, and other things to build the body-house, just as a man must have wood, brick, iron, and glass when he wishes to build. We have looked at the outside of the house we live in, and we have learned some things about its frame, its servants, the telephone system, and the master who lives inside. Now we will look through some of the wonderful rooms in the house, and I am sure you will enjoy learning how they are made, and the work that is done in them.

The door, or entrance, is so small we can not possibly go inside ourselves, so here is a slice of good whole-wheat bread we will send, and I will tell you what it finds within. As it has no tongue, I will speak the words it would say if it could talk, and you may ask any question you wish. Now listen:—

I was made from the wheat that grew in a farmer's field. After the miller had ground me into flour, your mother made me into a loaf, and I was baked in a hot oven till I was brown all over outside. As she put me away to cool, she said, "That will make the children grow." She left me alone a whole day, for she knew I was unfit to be eaten while so warm. After that I was cut into slices and made ready to help mend and build up the body-house.

I started on my way to the kitchen, where much of the work is done, and to get there passed through a pair of front doors, which were a pretty red color. These doors, I have been told, can do wonderful things besides opening to let visitors pass in. They can sing, whistle, and talk. They look best when the corners turn up; if they turn down, one does not care to go near them.

HELEN: Oh, I see! You mean our lips.

MOTHER: Yes, I think that is what you call them. When I passed inside the doors, I found a double row of thirty-two servants, all dressed in clean white dresses, waiting for me. Children have only twenty-eight of these servants, I am told. It was their work to make me ready for the kitchen downstairs. If the house is very new, you will find only three or four, or perhaps none at all.

"WHEAT THAT GREW IN A FARMER'S FIELD."



PERCY: The servants must be the teeth. I didn't know there were so many.

AMY: And I think the bread we eat doesn't always find them wearing clean white dresses, either. There is Uncle John; his teeth are all stained with nasty tobacco juice.

MOTHER: But they *should* be dressed as I have said, and they need careful brushing and washing every day. They should not be used to crack nuts, for they may get broken. If they are not well cared for, the dresses wear out, and great holes can be seen in them. Sometimes they can be mended, and again they cause the master of the house much trouble, and he is obliged to get some one to take them away, because they give him so much pain.

I was quite surprised at the way these servants treated me, though I suppose they knew best what to do. Some of them cut me in two. Others tore me into pieces and ground me till I thought I was passing through another mill. As I had a chance, I looked around, and then I saw the room I was in had a beautiful arched ceiling of a pale pink color.

There was a large servant behind those dressed in white, and he wore a pink uniform. You should have seen the way he rolled me over and over in that room. The servants in white dresses never stirred from where they were standing, but the one wearing the pink uniform jumped from one side of the room to the other, and seemed to be a very lively fellow. I don't know what he would have done had he not been fastened to the floor. Sometimes, I am told, he peeps out between the folding doors to see

what is going on outside, or to tell what kind of work is being done inside. I have heard that sometimes his dress becomes a dirty yellow or brown, and a man with a wise look comes and asks this servant to step outside a moment, till he can see how his uniform looks.

HELEN: How funny to think of our teeth and tongue as our servants!

MOTHER: But that is what they are. There is another group of servants in this passage, called *glands*. They have little rooms opening into the passage near the floor, and also in the back part of the room. If you ever visited a cave, you remember the walls were wet, and water was dropping from them. You know the skin on the outside of your body feels dry. Some parts of the body have skin inside, but it is *wet* instead of dry. It is that way in this hall. That which makes it so is called *saliva*, and it is the duty of the servants called glands to pour saliva over the food as soon as it comes through the front doors, while the tongue rolls it about, and the teeth grind it.

ELMER: But what good does that do?

MOTHER: It moistens the food and makes it slippery, so it can pass on to the kitchen. Perhaps you know bread is partly made of starch. Another thing the saliva does is to turn starch into sugar, and this makes less work in the kitchen downstairs, as the cook down there has but little to do with starch.

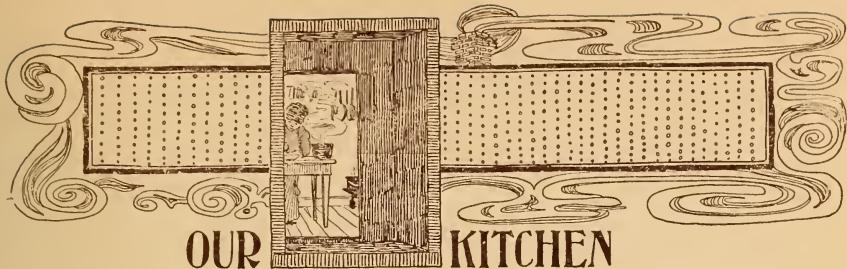
AMY: How may we know when the starch in bread or biscuit is changed to sugar?

MOTHER: If you let the teeth chew your food a long

time, until it becomes well mixed with saliva, you will find that it tastes sweet. This is because the starch has become sugar, though you must not think this kind of sugar is as sweet as the sugar which you buy.

HELEN: If the walls in this room moisten the food, why should we drink while eating?

MOTHER: It is not best to drink much when you eat, and not at all unless your food is very dry. The glands furnish from one to three pints of saliva a day. If you drink much, the saliva is not well mixed with the food, and it is hurried down to the kitchen before the servants have finished their work. This makes extra work for the cook downstairs.



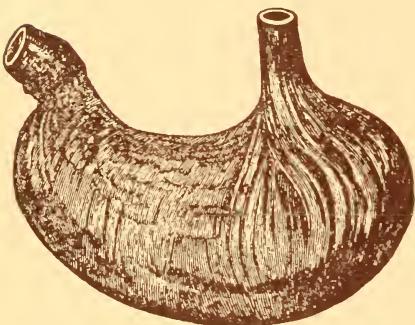
## OUR KITCHEN



MOTHER: We will now let Bread proceed with its story. Remember I am telling you what it would say if it could talk. Now listen. While I was in the passage and the servants were making me ready to go to the kitchen, I saw a small pink curtain in the back end of the room, and I wondered what was behind it. I soon found out. After the tongue had pulled and pushed me around and rolled me over as long as he wished, he pushed me back toward the curtain, and I found myself in a room with no floor. I saw a passage which opens into the nose, but as soon as I came in sight, a curtain fell back and closed it, so I knew I was not wanted there. Then I saw another door, which I afterward learned led to the bath-room in the lungs, but as I was about to go in, a little trap door closed tightly, and so I found that was not the way to the kitchen. There was still another passage, for this room seemed to be filled with doors, even though it was so small, but that led to the ear. I began to think I was not wanted at all, for every door I came to was shut in my face, as it were.

HELEN: I don't wonder Bread didn't know which way to go, do you, mother? and it was a stranger in the house, too.

MOTHER: I was just thinking about going back through the folding doors through which I came, when a door opened in the back part of the throat, and I began to slide downstairs. Such queer stairs you never saw. They seemed to grow larger as I went down, and smaller at the top, so they kept pushing me, and I could not go back if I would.



*The stomach.*

HELEN: That shows you should never put such things as pins and buttons in your mouth.

ELMER: And what did the kitchen look like?

MOTHER: Like no room you ever saw in your life. I looked around for the corners, but there were none. It is shaped some like an egg. Here is a picture, which will help you to understand the shape of the room.

You see it has two doors, or openings,—one at which to go in, and the other to pass out. The walls are a pale pink color and are full of wrinkles if the room is empty. When the master of the house sends down so much bread or other food that it fills the kitchen full, the walls become

smooth and the room is larger, but when the food first begins to go down, it finds the room quite small, and the walls full of folds, or wrinkles.

This room is very strong, as there are really three walls, one inside the other. The pink lining inside is made of wet skin, something like that found in the room upstairs. The middle wall is made of muscles, which cross one another in different ways; for the kitchen has many of these useful servants. The outer coat, or "overcoat," of the stomach has for its work to pour out a kind of water to keep the walls moist so they will not stick to other things which are packed so closely in the trunk of the body. I am sure no person could ever pack so many things in a trunk the same size without crowding some of them or getting them out of order.

HELEN: But I would like to know who acts as cook in this curious kitchen.

MOTHER: The name of the head cook is Di-ges'tion. There is a whole family of helpers, named Juice, whose work it is to assist Di-ges'tion. Of course they do not boil and bake, as we do, but they take the food and make it ready for the use of the body. Perhaps you would call it di-gest'ing it.

The chief helper is a very important person, called Gastric Juice. When the kitchen is empty, Gastric Juice stays in some tiny bags or bottles which cover the walls of the kitchen all over, but as soon as anything comes into the room from the stairway at the top, she comes out and goes to work. She pours a fluid which looks like water, over

the food, which dissolves, or melts it. If you could look inside you might think the stomach was "sweating;" but it is only Gastric Juice coming out to care for the food you have sent down to build and mend the body. Several quarts come from the walls of the kitchen every day.

Were you ever in a ship at sea? If so, you know that everything in the boat was shaking and moving. As soon as Bread comes into the kitchen, it finds the room moving like that, and it is thrown from one side to the other, and churned up and down, over and over, till, if you could see it, you would never think it was bread at all. Gastric Juice melts and mixes it, and it becomes so changed it looks very much like paste. After Bread comes down-stairs, some potatoes, fruit, and other things "come tumbling after," but after all has been in the kitchen two hours, you could not tell which is bread, fruit, or potatoes; for they are all mixed together.

I expect you are wondering how the food would ever get out of the kitchen. After it was shaken and churned several hours, the walls gave it a push, and it came to the door where visitors pass out. Such a queer door it was, too, but it opens and shuts like the one at the entrance to the passage. This door has neither hinges nor rollers. It was kept tightly closed while the food was churned about and melted, and it looks quite like a boy's lips when he is going to whistle. As Bread came near, the door opened, and part of the food paste passed through into another room. Strange as it may seem to you, this door seems to do a kind of thinking, and if food tries to get through

before it is made as fine as it should be, the door seems to say, "No, *sir*; you can not go through here;" and it shuts so close together that not another thing can pass out. So when the food came the first time, the door seemed to think part of it was too big to go through, and it was sent back, to be churned and squeezed again before it could go into the next room with the rest of the food.

ELMER: I didn't know it took so much work and such a long time to digest what we eat.

MOTHER: This should teach us to use care in what we send into the stomach. Let me tell you a few other things about the stomach, which we call the kitchen of the body. The helper, Gastric Juice, does her work perfectly if she is used well; but when the master of the house is unkind, she always makes him suffer for it. Sometimes he sends down a lot of cold water, ice-cream, or some other kind of ice, when she is just ready to begin her work. This makes her kitchen so cold that she is obliged to wait till it gets warm again. She doesn't like much water when she has work on hand; for she thinks Saliva and herself can moisten the food as much as it needs.

AMY: Does Di-ges'tion like hot drinks, mother?

MOTHER: No; they burn the tender walls of the stomach and make them weak. Tea and coffee are hurtful to the stomach, as well as to the nerves and other parts of the body. Another thing Di-ges'tion likes is to have all the food she is going to work on at once. That means we should eat what we need and then stop. If the master of the house sends down a good-sized dinner, and, after waiting

an hour or two, sends some more, the poor cook has a hard time, and it is no wonder that she gets sulky. It is as though you had been at work during the day, and then I should ask you to work all night, and give you no time to rest.

The cook in our kitchen is willing to work hard, and then she wants a rest, and this she ought to have. She hates to work at night after working all day, but some masters are so unkind as to even call her up after she has gone to bed, thinking her day's work is done; and she works and works away while other parts of the body have rest.

HELEN: I suppose that is when we eat between meals or late at night.

MOTHER: Yes; and another thing the cook dislikes is to have her kitchen filled so full that no more can get in. She must have room to work.

ELMER: That means we should not eat too much.

MOTHER: That is right. We should never eat till we feel so full we can take no more. If a builder was beginning to build or mend a house and you should pile bricks, timber, stones, and lime around him till he had no room to work, he would say, "Please take part of this out of my way, and then I can do something." So the stomach wants just enough, but no more, and we should not make the cook cross by abusing her in this way. She also dislikes hot things, such as mustard, pepper, and spices. How would your eye feel if you should get some pepper or mustard in it?

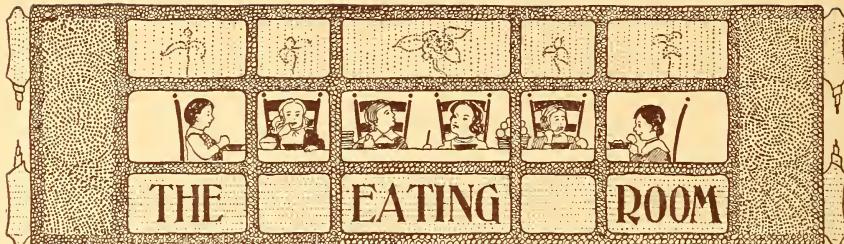
ELMER: It would smart.

PERCY: It would look red.

MOTHER: That is the effect they have on the stomach, too. Neither does the cook like to have much fat or sugar. Sometimes she gets so provoked when the master of the house sends down things she can not use, or too much even of that which is good, that the doorway to the stairway opens by which they came down, and she throws them back in his face. He has a sorry time of it then, and it may be quite a while before she is pleased again. But she only does this after she has suffered a long time, and when she knows it is for the good of the body-house.

AMY: What a long time it takes to fix up the food we eat so it can be used in the body! I would like to know where the food goes after the cook in the kitchen has digested it.

MOTHER: We will finish this part of the story in the next chapter.



**M**OTHER: While waiting for the door to open to let the food pass from the stomach kitchen, let me tell you that the walls of the kitchen are covered with hundreds of little mouths; for you must remember this room is like no other that was ever made. These tiny mouths keep drinking the food which is digested, and it is taken into the blood through the tiny blood-vessels which cover the stomach.

At last comes the food which could not pass the door again, and this time it passes through into a long, narrow room, with walls quite like those of the kitchen. Sometimes a plum pit gets into the kitchen; the cook is unable to use it, and when it goes up to the door, it closes quickly, so it must stay where it is. Sometime after the door will open and let it through.

HELEN: That is the same as though you should tell me I should not do a thing, and then, because I teased or coaxed, you should let me do what you had before said I should not.

MOTHER: Yes, that is the way with this door-keeper. But sometimes the door closes very tightly, and then there is trouble, for that which can not get through the second

door must find its way back through the first. We should be very careful about swallowing large seeds of fruit, buttons, or anything that is hard and can not be digested. People are sometimes made very ill in this way. But now we will learn what is done in the second room.

Perhaps it might be called the "serving room;" for it is here the food is made ready for the eating room. Here we find two assistant cooks. The name of one is Pan-cre-at'ic Juice, and the other is called Bile. Each one has a room of his own. Pan-cre-at'ic Juice has his home in a room back of the kitchen, which is called the pancreas. Bile lives in the largest room in the body-house, which is called the liver.

The liver might be called a factory; for it has hundreds of little rooms in which Bile is made. It has a waiting room, called the gall, where Bile stays when he is not wanted. This tiny room is close to the liver, and from that Bile goes to the serving room. On the way he meets Pan-cre-at'ic Juice, and they go on to their work together.

Bile, like some other servants, is hard to please, and he will do only one kind of work. It is the duty of these cooks to finish up the work that Gastric Juice has begun. Bile will work with hardly anything but fats, and it is his work to make them into such tiny drops that they can be used in the body. He must also furnish part of the fuel to keep the body warm. He sometimes gets lazy or angry if the master of the house gives him too much work, or if he sends too much fat or sugar into the serving room. The master of the house tells his friends he is

"bilious," which means that Bile is out of temper and wants less hard work and more rest.

PERCY: Is Pan-cre-at'ic Juice so particular as Bile?

MOTHER: No; he is much more obliging, and is willing to do anything that needs to be done. Together these helpers work over the food after it comes from the kitchen till it is very fine and creamy.

AMY: Does this room look like the kitchen?

MOTHER: The walls are very much the same, and they keep eating or sucking up the food that is wholly digested, much as a sponge sucks up water. A part is taken up this way and goes into the blood-vessels at once, but part is sent on to the eating room, where hundreds of little people are waiting for their breakfasts and dinners.

HELEN: How does the eating room look?

MOTHER: This room is very narrow and about twenty feet long. You must not think it is a straight room twenty feet long, for it is not. At one side it is fastened to a thin band, and the band is gathered like a frill or ruffle, so the room, though it is folded over and over, never gets tangled. Perhaps I might say it is like a tube more than a room.

The little folks who eat here do not sit at tables as you do. They are fastened to the walls, so they are always in the same places. Another name for this room is the "small intestine."

ELMER: I would like to see some of the little folks who eat there. How large are they?

MOTHER: They are so very, *very* small you could not see them unless you had a strong glass to help you. They

stand up straight, like the soft, silky part of velvet or plush. They are called Villi.

As the food comes in from the serving room, another helper, called In-tes'ti-nal Juice, takes any part which the other servants have not finished as it passed through their rooms, and thus digestion is complete. The Villi soak the food up as it passes them, as a plant draws water and food from the ground.

HELEN: But how does it all get into the blood?

MOTHER: I was just about to tell you that part of the story. You have seen little creeks, and you know they flow into larger ones, which form small rivers, and they, in turn, flow in some broad river toward the sea. So this creamy fluid which is sucked up by the Villi goes into tiny veins; these open into larger ones, till all flow in one stream about as big as a slate-pencil up to a large vein near the neck, and from there to the heart, where the stream is changed to blood, and is ready for use in the body. Part of the food takes another way to get to the heart. It goes first to the liver, which takes the part it needs, and the rest goes on to the heart.

HELEN: Then all we eat finally gets into the blood.

MOTHER: No; there is always some part that can not be used. Passing through the eating room the waste is carried into a garbage box, called the colon, which should be emptied every day.

Now let us see if we can give the names of the different rooms a slice of bread passes through before it reaches the heart and becomes blood.

ELMER: First, the passage, which is the mouth, down the steep stairs or gullet, through the stomach kitchen, through the serving room, the eating room, or small intestine, and from there straight to the heart, or else by another road through the liver to the same place.

MOTHER: Very good. Now what juices make the bread ready to become blood.

PERCY: First, the saliva in the mouth.

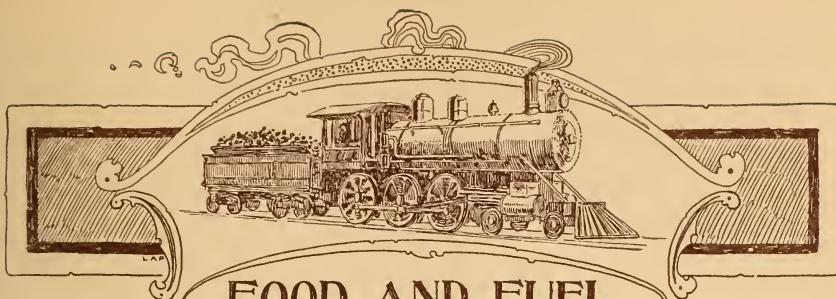
AMY: And gastric juice in the stomach.

HELEN: Then bile from the liver, and pan-cre-at'ic juice from the pancreas.

ELMER: The last was the in-tes'tin-al juice.

MOTHER: That is right, and let me tell you that in our bodies about twenty pounds of juices are made every day. Now I think we can remember that the food passes through five rooms, and it takes five juices to make it into blood. Two of the juice family, which have the long names, in-tes'tin-al and pan-cre-at'ic, are willing to work on all parts of the food. The others work chiefly on one part only. Saliva digests starch. Bile works on fats. Gastric juice takes the part which is called al-bu'men.

“Behind the bread, the snowy flour;  
Behind the flour, the mill;  
Behind the mill, the growing wheat  
    Nods on the breezy hill;  
Over the wheat is the glowing sun,  
    Ripening the heart of the grain;  
Above the sun is the gracious God,  
    Sending the sunlight and the rain.”



MOTHER: See that engine. Can you tell me what gives it the power or strength to draw its heavy load?

HELEN: Steam gives it power.

MOTHER: And what makes the steam?

ELMER: The fire in the furnace makes the water boil, and steam comes from the boiling water.

MOTHER: Then the engine can do nothing unless it has fuel to burn and water to boil. It might be the best ever made, and yet do no work and have no power even to move itself. Do you suppose the engineer is careful to take plenty of the best fuel he can get, and to have a good supply of water, when he has a long journey and a heavy train?

PERCY: I am sure he would be. I have read that it is counted one of the worst things an engineer can do to let his boiler get dry.

MOTHER: Well, in some ways our bodies are like the engine. Can you guess what the fuel is we must have?

AMY: Oh, I know! It is the food we eat.

ELMER: And we must have water to drink, too.

MOTHER: Yes; but what would you think of an engine driver who would fill the furnace of his engine with stones or sand, and fill the boiler with beer or whisky?

PERCY: I think he wouldn't have much steam, and his engine would soon be ruined.

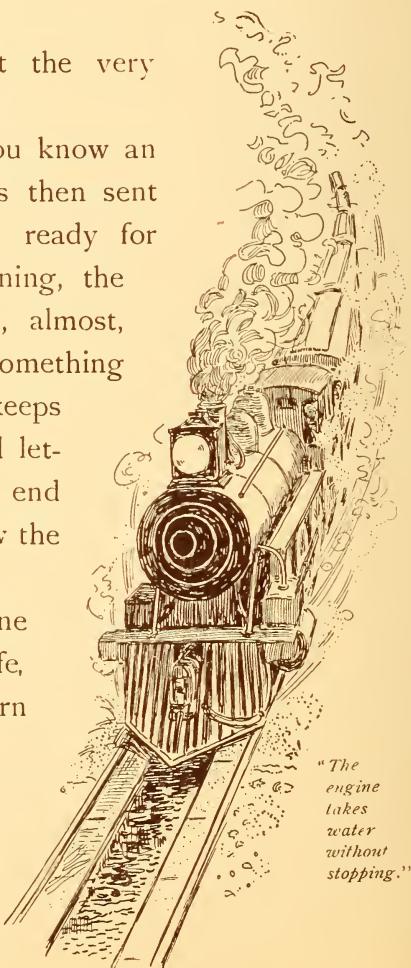
MOTHER: Then what shall we say about food and drink for the body, which is a hundred times more perfect in all its parts than the best engine men ever built, and so is much more apt to be injured?

HELEN: We ought to give it the very best food and drink we can get.

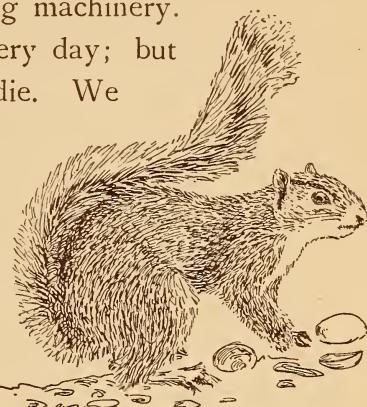
MOTHER: I think so, too. You know an engine works several hours, and is then sent to an engine house to be made ready for another trip, and, while it is running, the driver steps out at every station, almost, with his oil-can in one hand and something to clean with in the other, and he keeps cleaning it, oiling it, feeding it, and letting it drink till he comes to the end of his journey. Can you think how the body is different from this?

ELMER: When the body-machine starts running in the journey of life, it never stops to rest till it is worn out and can work no more.

MOTHER: Yes, and we must remember that some parts work night and day, summer and winter,



as long as we live. Yet they are wearing out all the time, and must be fed and cleaned and cared for while they are working. There are some railroads made with tanks or ditches between the rails, and the engine takes water without stopping. So our bodies must take food, drink, and all they need without stopping the living machinery. It is true some parts must rest every day; but others never stop working till we die. We should study, then, to know what we ought to eat and drink to make up the waste and keep the body well. Some kinds of birds and animals live on flesh. Others eat only grass and grains. The squirrel and the monkey eat nuts and fruits. Can you tell me some of the different things that men use as food?



AMY: They eat flesh, grains, and fruits.

ELMER: And we eat other things, such as salt, sugar, and milk.

MOTHER: Yes, while people *can* eat all these things, yet *all* of them are not the very best food, and, like the careful engineer, we should learn just what is good for the human machine, and give it only the best of what it can use. What do you think was given to men to eat at first?

AMY: Where can we find out, mother?

MOTHER: In the first chapter of the Bible. Perhaps Helen will read it for us.

HELEN: "And God said, Behold, I have given you

every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat."

MOTHER: The word "meat" means food. This was spoken before God had cursed the earth on account of sin, and so everything that grew was "good," as He had said. We see from this that all kinds of plants bearing seed, and all kinds of fruit, were good for food. No doubt if God had thought meat was good for man, He would have had a butcher shop somewhere in the garden of Eden, and some beef or mutton hanging from the limb of a tree.

PERCY: But what made the people begin to eat flesh, mother?

MOTHER: After a time the flood came and destroyed everything on the earth except what Noah had in the ark with him, and when he came out of the ark, God told him that people might eat the flesh of animals, and they have kept on eating it til the present time.

ELMER: But is it the best food, mother?

MOTHER: No, we can not say it is the very best; for, as time has passed, the animals have become sickly, and many wise doctors say it is unsafe to eat their flesh. Cattle which have been killed to eat have been found with diseased lungs, livers and kidneys. People sometimes become very ill and many have died from eating their flesh.

HELEN: I should think if they choose such food it would be like the engine driver filling his furnace with poor coal when he could get plenty that was better.

MOTHER: Perhaps so. When we can get good vege-

tables, grains, and fruits, it is much safer to use them for fuel in the body than to run the risk of giving it anything which might put the delicate machine out of order.

I saw a poem not long ago, written by Dr. J. H. Kellogg, which you might like to have read to you. It is called

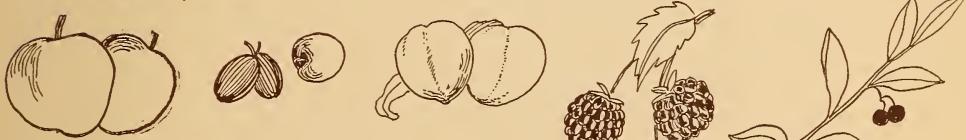


#### A VEGETARIAN SONG.

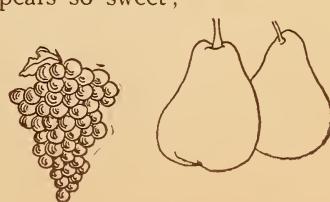
" You may talk of mutton-chop,  
 You may say it is tip-top  
 For a man who wants to live both well and long;  
 But you're much behind the time,  
 As I'll show you in this rhyme;  
 For there's better food than flesh to make one  
 well and strong.

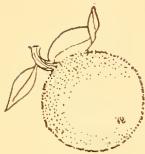
#### "CHORUS—

"On the glorious trees! on the glorious trees!  
 There the fruits and nuts, the fruits and nuts do  
 ever grow.  
 This is heaven's own food,  
 God pronounced it very good;  
 Yes, upon the trees, kissed by the breeze, the  
 best foods grow.



"There are pippins rich and rare,  
 There are plums and peaches fair,  
 There are huckleberries, raspberries, and pears so sweet;  
 There are grapes upon the vine,  
 Never made for use as wine,  
 All of which with one accord invite us,  
 'Come and eat.'

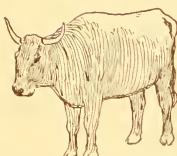




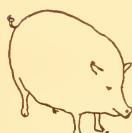
"There's the orange and the lime,  
Lemons, too, for summer-time,  
Which so often do refresh us in the toil and heat;  
There are nectarines so bright,  
There are cherries, red and white,  
All of which with one accord invite  
us, 'Come and eat.'



"There are English walnuts rich,  
And delicious almonds, which  
All alone supply us cream and milk, how rich a treat!  
There are coconuts and pine,  
Pecans, hickory-nuts so fine,  
All of which with one accord invite  
us, 'Come and eat.'



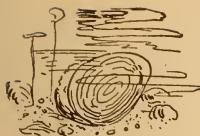
"There's the ox, an honest beast,  
See him served up at a feast,  
Notwithstanding he has been a faithful, true helpmeet  
To the farmer in his task;  
Yet he never once has asked  
More than humblest fare, and now his blood cries, 'Do  
not eat.'



"There's that scavenger, the pig,  
Grown to be so fat and big  
That he scarce can stand or walk upon his clumsy feet;  
Though he lives a life of ease,  
He is full of dire disease,  
And he surely is of all things most unfit to eat.



"There's the sheep with fleece so warm,  
Never did a bit of harm,  
But for cruel man provides good clothing, warm and neat;  
Ere you raise the sharpened knife,  
Cut his throat, and take his life,  
Listen to his sad though mute appeal, 'Don't slay to eat.'



"There's the oyster in his bed,  
Eating everything that's dead;  
He's the scavenger that cleans the bottom of the sea;  
He lives in the mud and slime,  
Catching microbes all the time,  
And his occupation surely says, 'Oh, don't eat me!'



"There are turkeys, daily fed  
On the best of household bread,  
So that they'll be fat and toothsome for Thanksgiving day;  
What a sin it is and shame,  
Crime without a proper name,  
For a man these gentle creatures first to feed, then slay!



"There are birds that sing a lay  
Full of joy at break of day,  
That will silent be forever at the set of sun.  
Some will slay the songsters sweet  
On pretense that they would eat,  
While a thousand more admit they kill them just for fun.

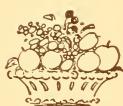


"List and hear these creatures all,  
Mighty beasts as well as small,  
With a thousand, thousand voices, loud and long repeat,  
We beseech you, let us live;  
Take not life you can not give;  
Only kill ferocious creatures; never slay to eat.'

"It was God's appointed plan,  
Given long ago to man,  
That no creature of another creature's flesh should eat,  
But that all alike should dine  
On the fruit of tree and vine  
And the toothsome grains, which heaven has given man  
for meat.



"Better far it is to be  
A vegetarian, don't you see?  
As thus we take our daily food direct from heaven's own hand.  
When we eat another's flesh,  
We're not taking food that's fresh,  
But are living on a diet that is second hand."



"Oh, then, let us all resolve  
That, while earth and years revolve,  
We will never more pollute our mouths with bloody meat,  
But will choose a diet pure,  
From disease and germs secure,  
And of fruits and nuts and grains so wholesome ever eat!"

. HELEN: I'm glad you read it to us, mother. It *does* seem, when the cattle eat the grass and grain, and then we eat *them*, as though we were eating second-hand food.

PERCY: I don't propose to do that way any longer. I think I should have what I eat first-hand, as well as the sheep and ox.

MOTHER: I am sure if you carry out your resolve you will have pure blood and a more healthy body. I saw some pictures of children not long ago who had never tasted meat in their lives, and they were as happy and hearty as you could wish to see. I want you each to act for yourselves in this matter, and do what you think will be the best for your health.

ELMER: Is salt a food, mother?

MOTHER: No; salt is a mineral, yet it is found in all parts of the body. It is also found in nearly all our foods. We add it to some things when cooking to give them flavor, but it is hurtful to eat much of it.

AMY: Are mustard, pepper, spices, ginger, and hot sauces good to eat?

MOTHER: No; some people think they *taste* good, but they are bad for the body. If you put some mustard on your skin, it makes it red, and may cause a blister. You know a very little pepper in your eye makes it smart. These hot things in the kitchen of our body-house make the walls red, and the cooks get very cross. When people eat such things, they become thirsty, and sometimes, instead of drinking water to cool the heated walls and put out the fire these hot things have made, they pour down beer, whisky, and other drinks, which makes the mischief worse. When once the habit is formed of using such things, they keep wanting them hotter and stronger, till nothing tastes good unless it is highly seasoned. Many become ill, and this is one way drunkards are made.

HELEN: But how do they make drunkards, mother?

MOTHER: These hot things which people sometimes put in the stomach make them thirsty, as I have said, and so they think they must have beer or something stronger. Such drinks do not quench thirst, and so they keep on drinking more and more. If you want the walls of your body-kitchen to be a pretty pale pink color, you will keep the doors shut tight against mustard, spices, pepper, and all hot sauces. You can teach your taste to like the fine flavors which are in our foods already, and which do no harm to the body.

AMY: But sugar is a good food, isn't it, mother?

MOTHER: I thought my little girl who is so fond of

sweet things would ask this question. It is true sugar is a food, but to use much of the kind we buy is hurtful to the body. Nearly all the foods we eat, such as flour, oatmeal, pease, beets, and milk, have sugar in them. Some fruits, such as figs and grapes, have a large amount. It is not well to eat food made very sweet with sugar, such as rich cakes, jams, and preserves. It is also harmful to eat candies and lollies, for many are made from a poor kind of sugar, and the coloring matter used to make them look pretty is hurtful. Besides, as the body-house has a sugar factory of its own, you see it gets too much sugar when we eat many sweet things.

HELEN: But where is the sugar factory, mother?

MOTHER: The liver, the largest worker in the house we live in, makes a kind of sugar, as well as the bitter bile. How it is done I can not tell, but it is true that in the hundreds of little rooms of which the liver is made, all the sweet things we eat are changed to liver sugar before they can be used in the body. The liver, also, makes starch into sugar, I mean the starch found in bread, potatoes, and other foods. Now if the fireman on an engine should shovel so much coal into his furnace that it was filled full, what would happen?

ELMER: The furnace would be choked up so the fire would go out, or else it would burn very slowly.

MOTHER: That is just what takes place in this wonderful sugar factory. Since the liver makes sugar out of starch which is found in our foods, if we swallow a big piece of cake, a lot of jam, some syrup, and some candy,

such treatment makes the liver cross. When all those little, living kettles are full of sugar already, how can they hold any more?

PERCY: How does the liver show it is cross, mother?

MOTHER: It goes to work to punish the master of the house.

It gives him a nasty taste in his mouth, and he feels so sick that he thinks he wants nothing to eat. Perhaps the liver sends word to the stomach that it has "struck work," and it will have nothing to do with such messes as are sent it to work over. Then the stomach, not knowing what else to do, sends all there is in it back upstairs out



"He has a sorry time."

through the passage, and the master of the house tells his friends who come to visit him, that he is "bilious," or that he has a "bilious attack," and you may be sure he has a sorry time. There may be a dreadful aching up in the

cupola; perhaps there is pain all over the house, all because the right kind of food and the right amount were not sent in to build up the body. The same thing is likely to happen if the master of the house sends a lot of pastry, fat meat, and fried or greasy foods into the kitchen. Bile is the one to care for them all, and he will bear such treatment awhile without complaining; but when once his temper is up, he will not be kind to anything the master may send him. Like other good servants, he makes a bad master. Perhaps he will try to do some work in a lazy sort of way; but he keeps grumbling all the time, till he makes the other servants as cross as himself.

PERCY: I think I will try to keep Bile good-natured, and send the right things and the right amount down to the sugar factory.

MOTHER: You may be sure you will not be happy unless you do; for, though strange, yet 'tis true that when things go wrong in the stomach and liver, it makes the master of the house very cross and unhappy.

Not long ago I visited a lady who has a pleasant home and all she could wish to make her comfortable. I found her face gloomy, and she was crying. She said she was not well; that a skin disease was troubling her; that her children did not do right; and that she was very miserable.

"I think it is my liver," she added; "for when my blood is right and my liver works well I am not troubled this way."

Poor woman! She thought she was not a Christian, and she made herself and her friends unhappy by her

fault-finding. Her liver was to blame, or rather *she* was to blame for giving it so much work to do that it made her life hard, when it ought to have been most pleasant.

HELEN: But, mother, you make us feel as though we hardly ought to eat at all, for fear of making somebody sour down-stairs.

MOTHER: Oh, no; I don't want you to feel that way, but I wish you to use these servants in your body-house so well that it will be a pleasure to them to serve you! We should eat plenty of good, plain food at proper times. We are made so we will get hungry and *want* to eat; and it is well that we do, or we might forget that fuel is needed in the body. Not only should we eat proper kinds of food, but we should be careful not to eat too much. You remember that Di-ges'tion must have plenty of room in which to do her work, or she gets peevish and does her task poorly.

AMY: How much should we eat in order not to eat too much?

MOTHER: Some persons need more food than others, and no one can tell another just how much he should eat; but it is safe to say that we should not put into the stomach all it will hold, nor eat just for the pleasure of eating. In very cold countries people can eat more without harm to themselves than they can in warmer climates. I once read of a traveler in the frozen north who saw an Esquimau eat thirty-five pounds of meat and several tallow candles in one day; but such a story seems almost too big to be true, and we would certainly hardly feel able to take such an amount

of food in the same time. Children should have plenty of good, simple food while they are growing.

ELMER: I think I will take a little food at a time, and take it often. That's the way the fireman feeds his engine.

MOTHER: That may do for an engine, but not for a stomach. It must have rest as well as food. We should eat what we need, give the stomach time to digest it, let it rest after it has finished its work, and then give it more to do. One great cause of illness among people now is that they eat too often and too much. Three meals a day at regular times are enough, and the last should be a light one and taken early, to allow the cooks time to do their work before the master goes to bed. Then all will be quiet in the body-house, and the servants can rest after their toil. If treated in this way, the morning will find them fresh and ready for their duties.

HELEN: Should our food be cooked or eaten raw?

MOTHER: I am glad you asked that question. Most kinds of foods are better cooked, but many things are made unfit for food at all by being badly cooked. To be able to prepare healthful food in a neat, tasteful way is the best and

most useful knowledge a girl can obtain. Every one should know how to make good, light bread, how to prepare vegetables, cook grains and fruits, and lay the table in a neat, pleasing way



*"Lay the table in a neat, pleasing way"*

## *Food and Fuel.*

AMY: Will you teach us how, mother?

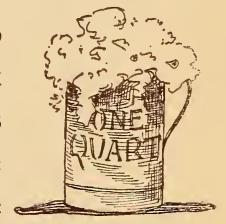
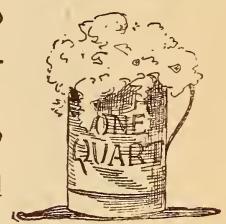
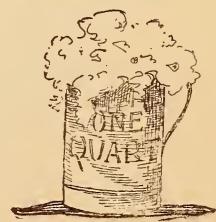
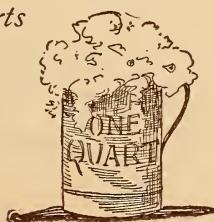
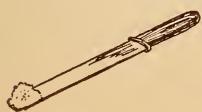
MOTHER: Certainly; we will begin this very day. I think we will form a class of four; for the boys will wish to learn too. I am sure you will soon be able to prepare food very nicely.

ELMER: Then we shall not always need to have a cook when we go out camping, but we can do our own cooking and care for ourselves.

MOTHER: There is still one other thing that I wish you never to forget, and that is that many men become drunkards because they do not have the right kind of food. It may be it is made so hot with pepper, mustard, and spices that it creates thirst, or it may be but half cooked, so they feel poorly fed. Such men are much more apt to go to the bar-room than the man who sits at a neatly-spread table furnished with plain, healthful food.

PERCY: But isn't alcohol a kind of food, mother? I have seen drinking men who looked so fat and strong it seems as if it must build up the body.

MOTHER: No, my son, it is a great mistake to think there is any food in alcohol or in any drink that contains it. A noted doctor in England says this about it: "There is more nourishment in the flour that can be put on the point of a table knife than in *eight quarts* of the best beer."



ELMER. But why do people who drink beer look so fat, then?

MOTHER: It is true many who drink it increase in flesh, and so they think the beer makes them large and strong. Fat men are not always strong men. The alcohol in the beer changes the muscles of the body into fat. It pushes the skin out and makes the face look round and plump.



"People who drink  
beer look fat."

AMY: And red, too.

MOTHER: Yes; and all the time the man is growing weaker instead of stronger. His liver changes into a mass of fat, and it crowds other rooms of the body-house so they can not properly carry on their work. The fleshy body of the beer-drinker is a diseased body, and you will find that it does not have firm muscles, a strong heart, or a healthy liver.

PERCY: But you have not told us what we *should* drink, mother.

MOTHER: Water, pure water, is the best drink for every one. Sometimes people become very ill from drinking bad water, so care should be taken to have it clean and pure. Bad water may be made harmless by boiling it, and this should always be done if it is not known that it is harmless. It may *look* all right, and yet cause sickness and death.

The well should never be near a pig-sty, barn-yard, or other filthy place. The seeds of sickness, which the doctors call "germs," may travel through the ground a long distance

and so get into the water in the well. This is more likely to be the case if the ground is sandy or slopes toward the well.

ELMER: Wouldn't it be better to drink tea or coffee than bad water?

MOTHER: Tea and coffee are not foods, and both contain poisons which are hurtful to the body. It does not make bad water better to put poison into it. Besides, these drinks are often taken with food, and we have found that the cook down-stairs can do nothing while a lot of liquid is pouring down over her. It is also true that hot drinks weaken the walls of the stomach. It is better to drink pure water, and to take it before eating or some time after, and then we shall not be tempted to swallow our food without properly chewing it. Alcohol, tea, and coffee are stimulants.

HELEN: And I think you said once, mother, that a stimulant is like a whip to a tired horse.

MOTHER: Yes; to stimulate means to prick, or goad, to excite, or rouse to action. When a horse is very tired from climbing a steep hill his driver strikes him with a whip. That *stimulates* but it does not strengthen him. At first it takes but one blow to make him go faster, then two or three, and he finally becomes so weak that he does not respond to the whip at all.



"Water, pure water, is the best drink for every one."

That is just what happens when a person uses tea, coffee, tobacco, beer, or whisky. At first only a little will make him feel rested and as though he were stronger. But soon he wants more, and does not feel as strong as before he took the stimulant the first time. These drinks



stimulate, but do not give strength. When a horse is tired he does not need a whip, but food and rest. The same is true of a man or woman when tired. Instead of putting poison in the stomach they need good food and rest, and these will make them really stronger.

PERCY: I am glad that I know why all those things are called stimulants.

MOTHER: And I must tell you one more thing about the liver which will help you understand what a wonderful part of the body-house it is, and why we should treat it

kindly. As you already know, it is the largest room in the body. We might call it the store-room; for after the fuel is ready to use, it is stored up in the liver, where it is kept till needed, just as the tender carries a supply of coal for the engine.

We can not always be eating, and the body needs fuel when we are asleep as well as when we are awake, so the liver stores it away and sends it out when needed. Now if the master of the house sends a lot of alcohol to his liver, at first the little rooms fill up with fat, so they can not do their work or store up food for the body. If he keeps sending more and more whisky to his liver, it finally becomes small and hard, and when he goes to the doctor to find out what disease he has, the wise man tells him he has "the drunkard's liver."

HELEN: What a pity it is that men should abuse the liver so!

MOTHER: Yes, it is a pity, but some women are as bad, though not as many of them as of the men take alcohol. Some of them who would never think of doing *that*, think that their liver is too big, and that it makes the waist too large, so they gird it up with tight clothing and do not give it room to work. One doctor found a woman who had squeezed her waist so long that the liver was cut in two; and she died for her folly.

When Liver finds his room growing smaller, he gets cross, and says, "We'll see about this;" and he gives the young lady a pain in her side. Her skin begins to look yellow and dirty, and the silly girl goes to the doctor for

some medicine to make her well, when all she needs is to give Liver room to do his work, and give her body the right kind of fuel. Perhaps she is so foolish that she would rather be ill than let her waist grow as large as God made it; and, if so, she and her friends have a sorry time.

AMY: My liver shall never scold because it can't have room enough in which to work.

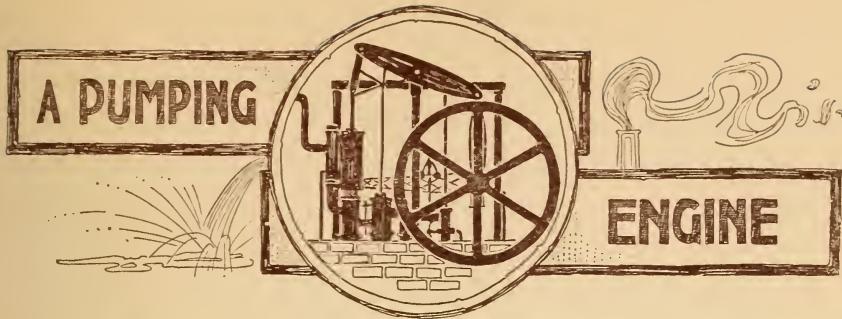
MOTHER: That's like my sensible girl, and I wish every other in the land would say the same.

HELEN: But, mother, I have heard girls say that their dresses were not a bit tight, when I am almost sure they were.

MOTHER: The only safe way is not to wear corsets or tight bands at all, and the clothing should be so loose that it will not compress the body when one draws a deep, full breath.

PERCY: I should think there was enough sickness in the world without people eating, drinking, and dressing to make themselves ill.

MOTHER: Many people do not know that it is what they do that makes them ill. They think people *must* be sick sometimes, and they do not study to know how to care for themselves in such a way that they may keep well. For this reason I wish you to learn how to care for the holy temple of your body while you are children, and we must also do all we can to help others by living right ourselves.



MOTHER: When we visited the water-works what did you admire most of all the things you saw, Elmer?

ELMER: The great engines that kept pumping all the time and never stopped to rest. How strange it seemed to think that they pump enough water for all the people in this great city! The houses on the hillsides as well as those on low ground have all they need.

MOTHER: But you would hardly think the house we live in has the most wondrous little pumping engine you ever saw, would you? Day and night it pumps "the river of life," as the blood has been called, to every part of the body. If it should once stop, we would die, and the body-house could never be used again.

HELEN: Do you mean the heart, mother?

MOTHER: Yes. Can you tell me where your heart is?

AMY: I can. It is on my left side.

MOTHER: Not quite right, little girl. The lower point is felt on the left side, it is true; but most of the heart is higher up and nearer the center of your body. Who can tell how large it is?

PERCY: About the size of the fist of the person in whom it is found.

AMY: Then the baby's heart is about as big as his dear little hand.

MOTHER: Can you describe its shape?

HELEN: I think it is something like that of a pear or a strawberry, with the small end down.

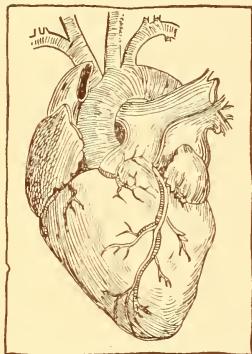
MOTHER: Here is a picture that will help us in learning its shape. I think I have not yet told you that the

trunk of the body is divided into two large rooms. There is a partition running crosswise, called the di'a-phragm (di'a-fram). This gives us a large upper room, where we find the engine and bath room. The kitchen, eating room, store room, and waste rooms are in the lower part of the trunk, below the di'a-phragm. But we want to talk about the heart now. We have found out how

large it is and what it is shaped like; let us next take a peep inside and learn, if we can, how it does its work.

ELMER: Didn't you tell us once that the heart was made of muscles?

MOTHER: Yes; the outside walls are made of little strong muscles, and the inside is hollow. It is divided into four rooms. Each has its own name, but we will not try to learn them now. There is a wall reaching from top to bottom, and as it has no door, nothing can pass through from one side to the other. Then there are cross walls, or



*The heart.*

partitions, with folding doors in them, so there is an up-stairs and down-stairs room on each side. There are big pipes, or tubes, leading in or out from each room. They are called veins, or ar'ter-ies. The veins carry the blood *to* the heart, while the arteries carry it *away*.

HELEN: But, mother, what makes the heart beat?

MOTHER: I thought that would be about the first thing you would wish to know, and I will explain the best I can. When the muscles which make up the heart draw together, the rooms inside become small, and the blood in them is squeezed out. When the muscles slacken, the rooms become larger, and the blood rushes in and fills them again. So the blood keeps coming in and going out of the heart all the time, and it causes it to make the movement which we call beating.

AMY: How fast does it beat?

MOTHER: In very little children it beats from one hundred and twenty to one hundred and forty times a minute. In grown people it beats sixty or seventy times, and when the body-house has grown old and feeble, it beats slower still. Percy, you may run up and down stairs and then tell us if you see any difference in your heart-beats.

PERCY: I believe they are twice as many as they were when I was sitting still.

MOTHER: Hardly as many as that, but the heart beats much more quickly. Can you think of anything else that makes the action of the heart faster?

HELEN: When I was frightened this morning I could hear my heart go thump, thump, and I am sure it seemed to be in a hurry.

MOTHER: Yes; moving quickly, fright, anger, or joy makes this busy pump work more quickly. Sadness and grief cause it to work slowly. It beats faster when we are standing than when we sit still, and the motion is slower when we lie down than when we are sitting.

ELMER: Why did the doctor put his finger on my wrist when I was sick, mother?

MOTHER: He wanted to know how your heart was working, so he felt your pulse. Sometimes when people are ill it beats very, very fast, and sometimes it moves more slowly than it should.

AMY: What is the pulse?

MOTHER: If I use any words that you do not understand you must ask what they mean. The pulse is the beating or throbbing of the arteries caused by the blood flowing through them from the heart. Have you noticed how the water sometimes goes in jerks as it is pumped through the hose pipe in the garden? It is that way with the heart. Each beat sends the blood through the arteries in jerks, and when we place our fingers on them, we can tell how fast the heart is beating. That is called the pulse.

AMY: Sometimes I think that I can hear my heart beating.

MOTHER: Each time it beats it makes two sounds, and they can be heard if the ear is placed over the heart. The doctor can tell by these sounds whether the heart is working all right.

PERCY: But I should think it would get tired out if it keeps at work all the time.

MOTHER: So it would if it had no rest. Every part of the body must rest. Between the heart-beats there is just a little rest, and, though the time is very short, yet if it were all put together it would amount to six or eight hours a day. .

HELEN: If the heart beats sixty or seventy times a minute, I wonder how many times it beats in a day.

MOTHER: You may do a little figuring to find out. Seventy beats a minute, sixty minutes an hour, and twenty-four hours a day.

ELMER: I have it. It would be more than one hundred thousand.

MOTHER: And this means hard work, too; for if all it does in twenty-four hours were done at once, it would be equal to lifting one hundred and twenty tons of stone one foot from the ground.

70
60
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4,200
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PERCY: Whew! I should think this was a powerful little force-pump, sure.

MOTHER: But what would you think of a man who made his heart beat six thousand times more in twenty-four hours, which means that it must lift seven tons more than it should?

AMY: But I thought the heart kept working of itself. Then how *could* any one make it do more?

MOTHER: By taking only two ounces of alcohol in a day the heart would be overworked as I have said. It would not only have its regular work to do, but it would do that amount extra to throw out the poison it finds in the blood; for it knows it is an enemy. See, I have taken

the pendulum off the clock for a minute. Now what has happened?

ELMER: It ticks much faster, and will soon run down.

MOTHER: It is much the same way with the heart of a person who takes drink with alcohol in it. His heart beats faster; his face gets red, and he can think and talk fast. It is like an engineer putting on steam and sending his train at lightning speed down a steep grade. If nothing worse happens, he will find when he comes where the track is upgrade that his power is gone and he has wasted his steam. The clock runs fast with the pendulum off, but it soon "runs down," we say, and it is the same with the boy or the man who drinks. There are nerves which act on the heart as brakes do on the train. They keep it steadily at work and do not let it beat too fast. There is another way that alcohol hurts the heart.

HELEN: Please tell us how.

MOTHER: It changes the strong muscle walls into fat. The heart grows larger than it should be, and becomes so weak that it can not send the blood over the body as it should. The man has hard work to breathe. He gets the dropsy and other ailments, and perhaps dies of "heart failure."

PERCY: Does tobacco affect the heart, mother?

MOTHER: Yes; it makes its beat unsteady, and sometimes causes an illness which doctors call "tobacco heart." It also makes it work harder than it ought.

AMY: What can we do to keep the heart well and strong?



YOU "CAN RUN, JUMP, AND SWING."

MOTHER: Be sure to give it good blood to send over the body. You need not keep still for fear that you will break this curious little pump; for, like the engines in ships, it is made to be tumbled about. Boys and girls can run, jump, and swing, yet the little engine keeps on with its steady hub tub against the walls of the house, and we would hardly know it was there. Good, honest labor makes the heart work better, and sends the blood running swiftly to every part of the body. We say when we are cold that a brisk walk will "start the blood;" that is, the heart beats more quickly, and soon the whole body becomes warm. We might say that the heart is like a clock, as well as an engine. If I do not wind the clock, what happens?

PERCY: It runs down.

MOTHER: Does some one need to wind up your heart each day to keep it beating?

HELEN: Oh, no; it just keeps going itself!

MOTHER: God keeps it beating, sometimes for a hundred years, without our help. I read a little poem not long ago about the heart, which I will repeat for you:—

#### THE CLOCK OF LIFE.

"Oh, did you ever think, my child,  
That in your body dwells  
A tiny clock, that verily  
All other clocks excels?

"It needs no key to wind it up,  
No oiling of the wheels,  
No jeweler to make repairs;  
With such it never deals.

“Near seventy ticks a minute is  
Its normal race to go;  
Just place your thumb against your wrist,  
And you will find it so.

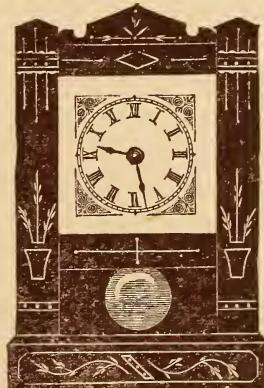
“This little clock was made to be  
A faithful sentinel,  
To give alarm of any change  
Within its prison cell.

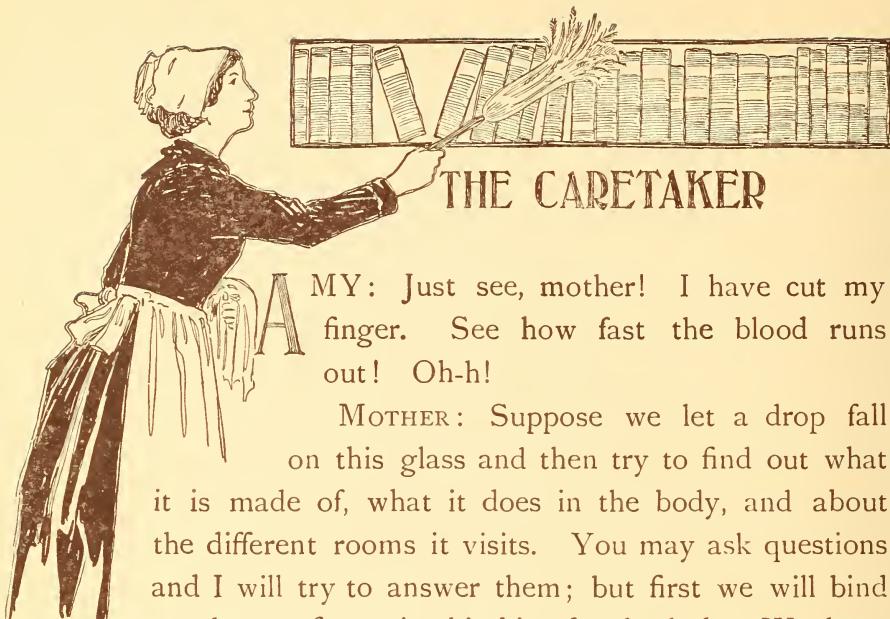
“If you are healthy, then its ticks  
Are even, full, and strong;  
By this you know that, in its cell,  
Nothing is going wrong.

“When sickness comes, it works so hard,  
And is so feeble, too,  
It can not keep the perfect time  
Its Maker meant it to.

“Now, would you help this little clock  
The best of time to keep?  
Then always mind the rules of health,  
And thus their blessings reap.”

—*Mrs. Julia Loomis.*





## THE CARETAKER

A MY: Just see, mother! I have cut my finger. See how fast the blood runs out! Oh-h!

MOTHER: Suppose we let a drop fall on this glass and then try to find out what it is made of, what it does in the body, and about the different rooms it visits. You may ask questions and I will try to answer them; but first we will bind up the cut finger in this bit of soft cloth. We have already learned how blood is made, but we want to learn what it does for us.

Blood is made from the food you eat and the water you drink. If you eat good food it makes good blood. Bad food and drink make bad blood. It might be called the caretaker, or the housekeeper of the body. Without it your body-house would go to ruin; for the Bible says, "The life of all flesh is the blood." After passing through the kitchen, serving room, and dining room, the blood enters a dark tunnel and comes to your heart.

HELEN: But what makes it such a bright red color?

MOTHER: Because it has millions of little red bodies called cor'pus-cles. Really it is a pale yellow, but there are so many of these tiny folk floating around that they make it

look red, just as a river would if it were packed full of tiny red fishes, or as water would if you should fill a bottle with very small red beads and then cover them with water.

PERCY: But are all the cor'pus-cles red?

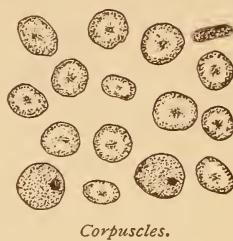
MOTHER: No; some are white, but there are many more red than white.

AMY: What do they look like?

MOTHER: You can not see them at all unless you should look through a mi'cro-scope. The red cor'pus-cles are shaped like a little biscuit with a dimple in the middle. The white ones keep changing their shape in a very wonderful way. First they are round, then square, then three-cornered, and they take on ever so many other shapes. There are several millions of these little red and white fellows in a single drop of blood.

ELMER: But you said it went through a dark tunnel to get to the heart. Please tell us about that.

MOTHER: The tunnel is round, like a tube, and I must tell you that these tubes are in every part of your body. Some are quite large, some are small, and some are so tiny that you could not see them if you should try. They are like a tree with its trunk dividing into large branches, and these into smaller ones, till at last they become little twigs. The largest tubes for carrying blood through the body are called arteries. The smaller ones are called veins. The arteries carry fresh, bright, clean blood to every part of your body-house. It bounds along with a hop, skip, and jump, as



*Corpuscles.*

though it were in a hurry to get to work. The arteries have very strong walls, and, as I told you, the blood soon finds itself in the heart.

HELEN: Which room did it go into first?

MOTHER: When the blood is fresh and clean it goes into the top room on the left side. It keeps coming in until the room is filled full. Then the little folding doors open, and the blood is crowded into the lower left room, the doors fly back, and—

AMY: But please tell us about the doors.

MOTHER: They are made so that the blood could not get back into the top room if it wished; for they never swing but one way, and some small cords hold them in place. These doors are called valves. When the lower room is filled, the walls press together, and the blood is forced into the largest blood tube in the body, the walls of which are so very smooth that the blood passes along with a merry bound. The tube keeps growing smaller the farther we go from the heart, and branches into many smaller tubes.

PERCY: And how far does the blood go?

MOTHER: Perhaps it first takes a trip through the trunk of your body, down through your right leg, and on to the end of your big toe. The tubes at last become very small, and there are so many of them that they are like a network of the finest lace. A hair would seem like a big rope beside them. They are so very tiny that you can not see them. Their walls are thinner than tissue paper, and they are so close together that you can not touch your skin with the point of a needle without touching some of them. When

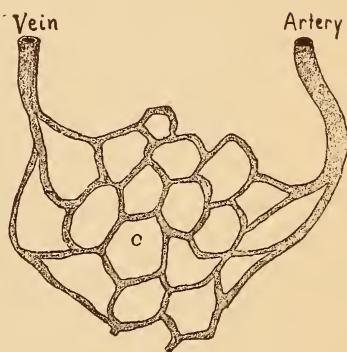
the blood comes to these tiny tubes, it does not travel so fast as at first, and as it passes along, the muscles pick it to pieces, take the part they want as food, and load the blood down with waste which they can not use. When they are so hungry, the blood is glad to feed them and give them the oxygen, which makes them warm.

AMY: Did it stay long in those little tubes?

MOTHER: No; it went through as quickly as it could, and on its way back found itself in bigger tubes, which keep growing larger; for it is now on its way back to the heart. This picture will help you to see the road it travels. It is now a dark red color, and unfit to work longer till it is washed. Back it goes to the heart, the tubes through which it travels growing larger all the way until it tumbles into the right top room of the heart, which, as you have learned, always has dirty, worn-out blood in it. But it is not allowed to stay there; for between this room and the lower right room there are three folding doors kept in place like the two on the left side, and through them it passes. The walls of the rooms on the right side of the heart are not as thick as those on the left side. I think that must be because the left side sends the blood farther than the right.

HELEN: Does the blood stop to rest in the lower right room?

MOTHER: Oh, no; it never rests as long as there is



any life in it! The heart squeezes it out into another big tube, and it soon finds itself in the bath room, where it is washed through and through, and its color becomes as bright red as when new.

AMY: And where does the blood then go?

MOTHER: Straight back to the left side of the heart, where it is pumped out the same as before; and this time we will say it goes to the kitchen of the house you live in, and helps the cook get the dinner you have eaten ready to be made into more blood. The old blood eats some of the good things, and again it is sent to the right side of the heart and back through the bath room.

PERCY: And what then?

MOTHER: Its next trip may be taken to the brain, to help a little girl learn her lessons in school. The brain takes what it can use, and back the blood goes to the right heart, around through the bath room again, and the next time it may be sent to the liver, where it finds sugar and bile-making going on, as usual.

ELMER: But how can the blood be of any use there?

MOTHER: I think you would not ask such a question if you could go there to see. It "takes all the starch out of it," as you sometimes say, and some other things besides, to make into sugar. It also uses part of it to make into bitter bile, so you may well believe that when it goes back to the heart there is not much left that is of value. But after a good wash in the bath room the blood goes back to the heart, and this time may be sent to the bones in your fingers, and they take what lime it has. This drop was just

making its way back to the heart again when Amy cut her finger and let it out.

PERCY: But I should have thought the blood would have been worn out making so many trips.

MOTHER: So it would if it was not made new by the food you eat. It keeps taking as well as giving as it goes round and round through the body. You would not expect a housekeeper to keep everything tidy and clean in a house, and not give her what she needed to make her strong and able to work; and so the master of the house gives the blood plenty to eat; and it makes no complaint as long as it can do its work well. It is a very busy person, we might say, and, as there is no end of things to do in the house in which you live, the blood works night and day.

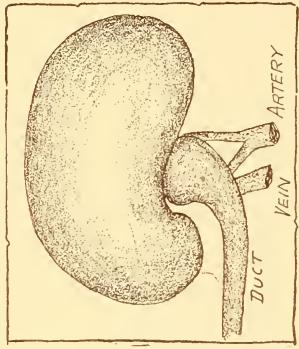
ELMER: But I don't see how the blood can take with it all that is needed to mend the different parts of the house.

MOTHER: It is supposed to carry with it a supply of everything that is needed to keep the house in order as it goes, so that when a bone says, "I want some lime," or a muscle says, "Please give me some al-bu'men," each part gets what it calls for if it is in the blood. Whether it has what every part needs depends on what the master of the house sends into the kitchen to make blood. Have I told you about the filters in the body?

AMY: I'm sure you have not. Please tell us now.

MOTHER: There are two of them in the lower part of the trunk close to the back, one on each side. They are the shape of a bean, and are called the kidneys. The blood passes through them, and some of the poisons it has

picked up are strained out and sent to a storeroom, called the bladder, where they are kept till the brain gives an order to send them away.



*A kidney.*

HELEN: But there is one thing I would like to know. I can see how blood can run down-hill into our fingers and toes, but I can't see how it can climb back up to the heart again. Will you please tell me?

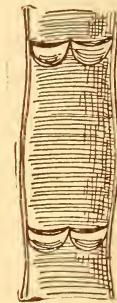
MOTHER: The heart is the power that sends it through the arteries to every part of the body, whether it is up-hill or down. Now when the blood has come to the end of its journey, and has reached the tiny hair-like veins of which I told you, more blood keeps coming down and pushes it on till it starts back through the larger veins. The blood keeps crowding behind, and the veins are made in such a way as to help it climb up.

PERCY: But how are they different from the arteries?

MOTHER: Did you ever see little watch-pockets hung in bedrooms in which to put watches? Well, the veins have tiny pockets in them, as you see in the picture.

AMY: But I don't see how that helps the blood in climbing.

MOTHER: It is this way: If you had a tube with little pockets and should hold it so the top of the pockets was



*"Veins have tiny pockets in them."*

*down*, you could pour anything through it and they would not stop it from passing. But turn the tube the other way, with the pockets *up*, as you see in the picture, and they would catch and hold anything you tried to pour through the tube. It is the same way with the veins and the blood. If the blood should try to go back, the pockets would fill full and hold it, but when it is passing up toward the heart, they let it slip by without holding it back.

ELMER: Then the blood keeps going round and round in the body, and never stops.

MOTHER: Yes; and this "going round and round," as you say, is called the cir-cu-la'tion. This drop of blood would have kept going until it was used up in mending your body and helping keep it alive, if it had not slipped out through the cut in Amy's finger into the world in which you live and move.

I know you have all enjoyed hearing how the blood travels through the body. Let me tell you a little story I read of what a boy said in school. His teacher asked him to tell the class how the blood cir'cu-lates, or goes round and round.

"Please, sir," said the lad, "the blood goes down one leg and up the other."

"Very clever of it, I am sure," said the teacher. "*How does it get across?*"

Perhaps that was something the boy had not thought of, and I am sure you would never give such an answer as that since you have heard the story of a drop of blood. Let us see the cut finger where it came out.

AMY: It doesn't bleed at all now, mother.

MOTHER: No; and that makes me think to tell you something else about this wonderful caretaker. If we had a quart of blood and should let it stand awhile, it would become thick like jelly. But if you should take a bundle of twigs and keep stirring it round and round, it would not get thick at all. If you looked at your bundle of twigs after stirring the blood with it, you would find the twigs covered with a sticky substance. If you should wash them, you would wash away the red color, and would have left a soft, stringy mass all matted together.

HELEN: But what is it good for?

MOTHER: It is called fibrin, and if it were not in the blood, you would bleed to death if you cut yourself. So long as the blood stays in the body, the fibrin goes quietly with it wherever it goes; but if it begins to run away, as it did from Amy's finger, the fibrin goes to work at once to cork up the place so it can not get out.

PERCY: How long does it take the blood to go from the heart through the body and back again, mother?

MOTHER: I am sure you will be surprised when I tell you that the heart sends it with such force that it will go to the farthest part and get back in from three to eight minutes, and some say it takes even less time than that.

ELMER: What! so quickly as that! It does not seem possible.

MOTHER: And though one-eighth of the body is blood, yet it will *all* pass through the heart in about the same time.

HELEN: How wonderful! But I don't see how all these

little things in the blood, called cor'pus-cles, can get through the tiny, hair-like veins, which are so small.

MOTHER: We can learn a useful lesson from them, and you would be pleased, I know, to watch them, if they were only large enough so you could. They seem to know just what they want to do, and where they ought to go. When the little veins are too small for more than one to go in at a time, they do not push or crowd one another. One row waits as politely as can be till the others have passed in, and then they follow. How wonderful it is to think of this river of life flowing round and round, and we feel nothing of it but the gentle tap, tap of the heart as it sends it bounding through every part of the body! Should it stop, we would die; for "the blood is the life."

PERCY: But how did people find out that the blood goes around as it does?

MOTHER: A doctor in England, named Harvey, first discovered it. Before his time people thought air went around through the body in the arteries. Men have studied the subject since Dr. Harvey lived, and they keep learning more about it all the time.

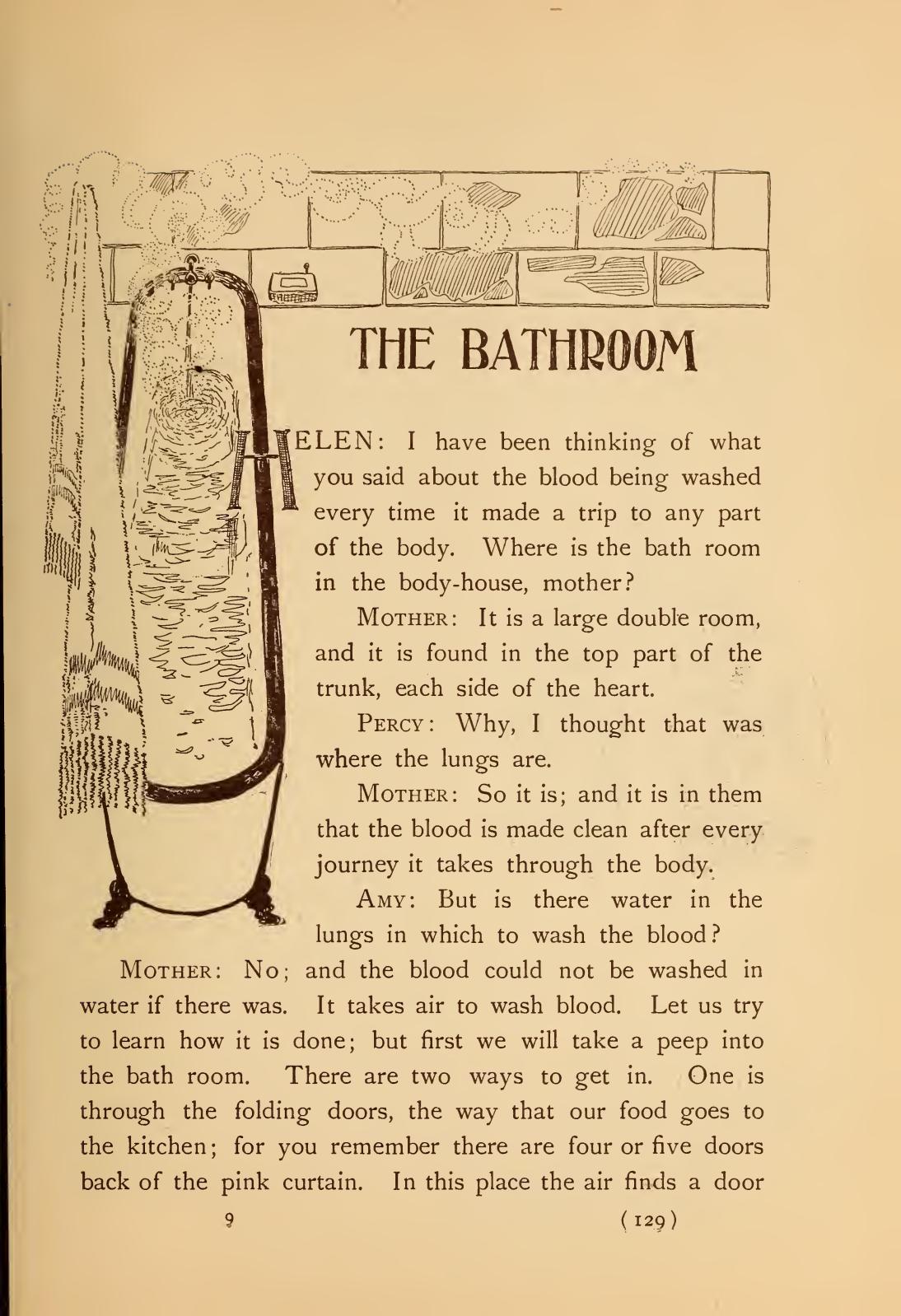
AMY: Does water go into the blood, mother?

MOTHER: Yes; it very quickly finds its way there, and it is the same with strong drinks, such as beer and whisky. It only takes a very few minutes for anything we drink to get into the blood stream.

The walls of the veins and arteries are governed by the nerves of our telephone system. They let just the right amount of blood flow through them all the time.

When alcohol gets into the blood, it puts the nerves to sleep, and so too much blood goes into the little veins. You know a man who drinks has a red face. If he drinks a long time, his nose gets so red that it is called a "rum blossom." This is because so much blood goes to his nose that it becomes large and red. Alcohol also makes the walls of the arteries weak, so they sometimes burst open and the person dies.

Now that we have learned a few things about the blood, we must be careful what we give this care-taker of the body to eat. We have learned very little of what there is to know, and as you grow older I hope you will study and learn more.



## THE BATHROOM

HELEN: I have been thinking of what you said about the blood being washed every time it made a trip to any part of the body. Where is the bath room in the body-house, mother?

MOTHER: It is a large double room, and it is found in the top part of the trunk, each side of the heart.

PERCY: Why, I thought that was where the lungs are.

MOTHER: So it is; and it is in them that the blood is made clean after every journey it takes through the body.

AMY: But is there water in the lungs in which to wash the blood?

MOTHER: No; and the blood could not be washed in water if there was. It takes air to wash blood. Let us try to learn how it is done; but first we will take a peep into the bath room. There are two ways to get in. One is through the folding doors, the way that our food goes to the kitchen; for you remember there are four or five doors back of the pink curtain. In this place the air finds a door

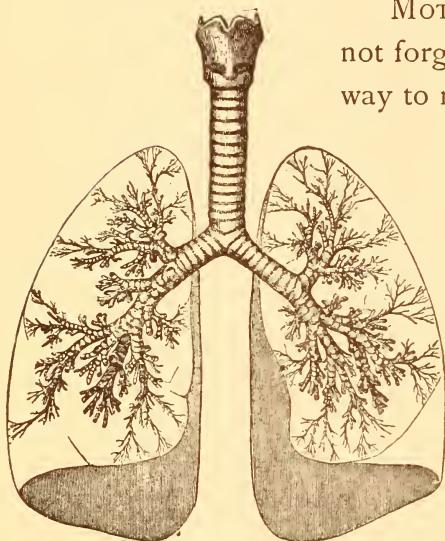
standing wide open, and it passes through a passage, called the windpipe, which is about three-fourths of an inch wide, and about four and one-half inches long in grown people. After going through the windpipe it comes to two passages, leading to the two parts of the bath room. While we might call it a double bath room, yet it is really two rooms.

ELMER: That must be the right and left lungs.

MOTHER: That is right. But I must not forget to tell you that there is another way to reach the lungs, and that is through two little doors, always standing open, just above the folding doors which lead to the kitchen. The air finds a long, curved passage to go through, and this is much the better way to go, because if it goes in cold, it passes some places where it gets warm before reaching the bath room. You know it would be rather hard to wash clothes in cold water, and so it is much better to have warm than cold air in which to cleanse the blood.

HELEN: You mean it passes through the nostrils in the nose.

MOTHER: Yes; and another reason why this is the best way for it to go is because the air is filtered or strained through some little hairs, which do their best to keep any dirt or dust which may be in the air from going further.



*The lungs.*

These passages open back of the pink curtain, and it goes down through the windpipe the same as though it had passed through the mouth.

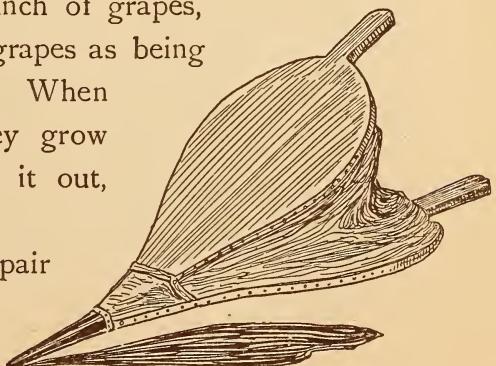
PERCY: But I should think our food would go into the bath room instead of the kitchen.

MOTHER: It would, only that, as soon as it starts for the kitchen, there is a little trap-door which feels it coming, and it shuts down quickly over the air passage, so nothing can get through. Suppose the trap-door does not do its duty quickly enough, and food "goes the wrong way," as we sometimes say, the person chokes and has a bad time till the food is out of the way. I once saw a fowl eating corn, and in some way a kernel got into her windpipe. She began hopping about in great distress, and died as quickly as though her head had been cut off. It sometimes happens that people are choked to death in the same way.

HELEN: But how does the bath room look?

MOTHER: It is a pretty pink color and seems much like a very fine sponge. If we could go inside we should find the passages divided again and again, till there are thousands and thousands of tiny air tubes, each ending in a little pouch quite like a bunch of grapes, only you should think of the grapes as being as small as a grain of sand. When the lungs are full of air, they grow larger, and when we breathe it out, they grow small.

ELMER: That is like a pair of bellows.



*A pair of bellows.*

MOTHER: Very much the same, and the bellows will help us understand how we breathe. Try to think of a little tree with its trunk, limbs, and leaves all hollow. If air were blown through the trunk, it would make every leaf puff out, and when no air was blown in, they would fall together again. It is the same with our lungs. They keep swelling out and falling together about eighteen times every minute.

AMY: But how is the blood washed in air, mother?

MOTHER: Perhaps it would be better to say it is aired, the same as we hang a garment in the sunshine and wind to make it fresh and sweet. You will remember that the blood takes oxygen, which is a part of the air, to every part of the body-house, and this makes it warm. In exchange the muscles give the blood a poison called carbonic acid gas. This gives the blood a dark, purplish color, and it must carry away the gas and get more oxygen before it can do any more work in mending the body.

PERCY: But I would like to know how it gets into the bath room.

MOTHER: The right side of the heart, which has nothing but soiled blood in it all the time, sends it to the lungs in a hurry, and it fills the thousands of hair-like veins which are in every part of the lungs. The walls of the veins are so thin that the oxygen in the lungs soaks through into the blood, and the poison in the blood goes through into the air, and is breathed out of the body. Do you understand it now?

PERCY: I think so.

MOTHER: If I should tie a piece of bladder over a glass of milk and place the glass in a bucket of water, the milk would come through into the water, and the water would pass into the milk, even though they were in separate dishes. Another way to show how the blood is cleansed would be to say that blood and air keep running near together, each in its own room, and as they pass they say, "Good-day;" air washes blood so it becomes bright and clean, and blood makes air very dirty with its poison gas; and, after trading in this way, both hurry along as fast as they came in.

ELMER: It must be that good air is needed more than good food.

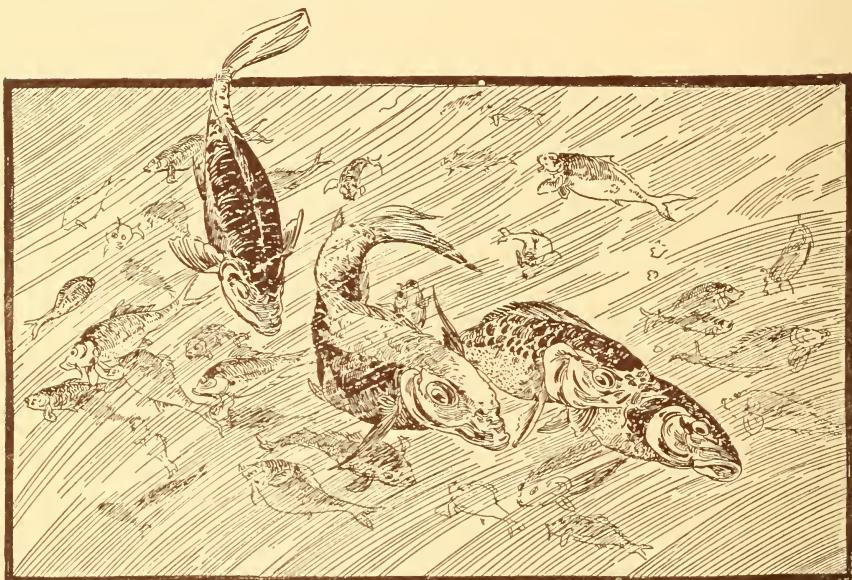
MOTHER: Why, yes; for while we need to eat only two or three times a day, we must take in air more than twenty-five thousand times. If we could not breathe for six or seven minutes, we would die, while we could live without food quite a number of days. How thankful we ought to be for pure, fresh air! And there is so much of it that we can have it without money and without price.

HELEN: Which is best, to breathe through the nose or the mouth?

MOTHER: Through the nose; for that was made for the air to pass through. Serious sickness of the throat and lungs is sometimes caused by breathing through the mouth. When the air goes this way, the person makes a very strange noise when asleep. The air seems to be trying to wake somebody up to shut the folding doors so it can go the right way. We call it snoring.

PERCY: I should think when there are so many people and animals, and all must have air to breathe, that it would soon become unfit to use.

MOTHER: We live in an ocean of air, as fishes live in



*"As fishes live in the sea."*

the sea. The winds sweep it round and round, and everything that grows helps to make it pure.

AMY: How can that be?

MOTHER: It may be said that plants breathe, as well as people, only they need the poison gas we breathe out, and they give out the oxygen we need to breathe in. There is no danger but we can get all the air we need if we will let it into our rooms.

ELMER: But isn't night air bad to breathe, mother?

MOTHER: No; for when it is night we can get nothing

but night air. It is true that if air is shut up in a room it soon becomes unfit to breathe, whether it is night or day.

PERCY: On frosty mornings my breath looks like steam as it comes out. Is that the poison gas, mother?

MOTHER: No; we can not see the gas, but what you see is the water we breathe out. We take in about a pint of air at every breath, and it is said that every time we breathe out we spoil half a barrelful of air, making it unfit to breathe. I will let you find out how many barrelfuls of fresh air we would need in an hour.

PERCY: Why, that would be over five hundred barrels! Who ever thought that we needed such a lot of fresh air in just one hour!

MOTHER: And who, then, would think of using only one roomful in a whole night! It is no wonder that many people have a headache when they wake in the morning.

HELEN: But, mother, we can't get clean air always, even when we are not in the house. This very day a man puffed tobacco smoke into my face as I was passing him.

AMY: But do you think it is *right*, mother, for any one to poison the pure, fresh air God has given us, with tobacco smoke, and make it unfit to use?

MOTHER: No; I do not; and a true gentleman will not do it. It is both rude and wrong. He not only wrongs others but harms himself. You know how it feels to get smoke into your eyes, and it is just as bad for the throat and lungs. Bad smells of any kind poison the air, making it unfit to breathe, so we should be careful to keep our rooms and everything about the house sweet and clean.

PERCY: I met a man in the street, and I could smell the whisky he had drunk. Did that come from his lungs?

MOTHER: Yes; just as soon as strong drink is swallowed, every part of the body tries to get rid of it. The alcohol in such drinks makes the thin walls of the lungs hard, so they can not make the blood clean, and they try to throw out the poison. Sometimes it causes that dreadful disease, consumption, which can not be cured.

HELEN: Don't a great many people die of consumption?

MOTHER: Yes; it kills more people than any other disease; so every one should take good care of their lungs, and give them plenty of room to grow. They should also breathe pure, fresh air at all times.

ELMER: But you can't squeeze the lungs. We must have room to breathe.

MOTHER: But we can squeeze the stomach and liver so that the lungs do not have room, and by stooping over when sitting or walking, we get round shoulders and narrow chests, and this causes the lungs to become small and diseased.

AMY: I once read how some people on a ship suffered for fresh air.

MOTHER: Please tell us about it.

AMY: One night when there was a storm the captain told the sailors to send the people down into a large room below deck so they would not be in the way. After they had gone, the doors were fastened, so they could not get out. When the storm was over, the sailors took a candle and opened the door, but when they went in, the candle

went out. At last enough fresh air got in so the candle would burn. They found the poor people lying on the floor, and quite a number of them were dead.

MOTHER: I suppose they had no air to breathe only that which had been used over and over again, and as that was not fresh, it poisoned them so they died. We should learn from this sad story to keep the lungs well filled with good air; for the blood can not be well cleansed if it is impure.

# HOW THE HOUSE IS HEATED

**M**OTHER: If you touch a stone, Amy, how does it feel?

AMY: It is cold.

**M**OTHER: Yes, wood, iron, glass, and all the things around us which do not have life, are cold. If you touch your head, how does it feel?

PERCY: It is warm.

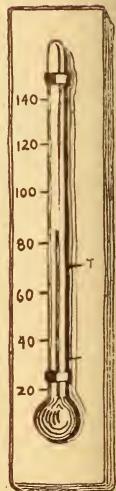
**M**OTHER: We sometimes see a little glass tube called a thermometer, with figures telling us how warm or how cold the air is. Here is a smaller one that you may hold in your mouth under your tongue, Elmer, and we will see if it will tell us how warm the house you live in is inside. That will do. The glass says it is about ninety-eight degrees. How many degrees will the larger glass record on a hot summer day?

ELMER: It is very warm when it is over eighty or ninety in the shade.

**M**OTHER: Yet you see that inside the body-house it is nearly one hundred degrees, yet you do not feel too warm. Are all animals warm?

HELEN: If they are alive, they are. If their bodies are cold, we say they are dead.

**M**OTHER: Some birds and animals have more heat in



Weather  
thermometer.

Fever  
ther-  
mometer.

their bodies than we do. The horse has one hundred degrees, the ox one hundred and one, the dog one hundred and two, the sheep one hundred and four, and the duck and pigeon have one hundred and eight. The bodies of some creatures, such as fishes and frogs, are much cooler than our own, and we call them cold-blooded. The frog has only seventy degrees of heat.

HELEN: But what makes us warm, mother?

MOTHER: Do you remember that we talked a good deal about our food as fuel not long ago?

PERCY: But, mother, fuel is something to *burn*, and there is no fire inside of us.

MOTHER: That is true in one way; but let us see if we can find out where the heat in our bodies comes from. It may be a little hard to understand, but we will try. Here is a candle. If lighted, it burns brightly. Now I will fasten a wire around it and lower it into this glass jar and cover it tightly. Now watch it. What is the matter?

AMY: It is going out. Now it just flickers and hardly burns at all. Why does it go out, mother?

MOTHER: Because all fire must have a part of the air called oxygen to make it burn. When the candle can have plenty of air, it burns brightly, but when shut up closely, where it soon uses all the oxygen, it will not burn at all. Now our bodies are much like the candle. We eat food, and when it is made into blood, it mixes with the oxygen

*"Now watch it."*

we breathe, and as it goes round and round in the body, it makes heat. The difference between us and the candle is that the burning does not go on as fast in our bodies as in the candle, so there is no flame, and it would take much longer to make the same amount of heat. If you throw a piece of fat into the fire, it will burn. If you eat the fat, it will make just as much heat in your body, but it will last a long time.

PERCY: How queer to think we are burning, bit by bit, just like a candle!

MOTHER: Yes; just as long as we live, the fire is kept going.

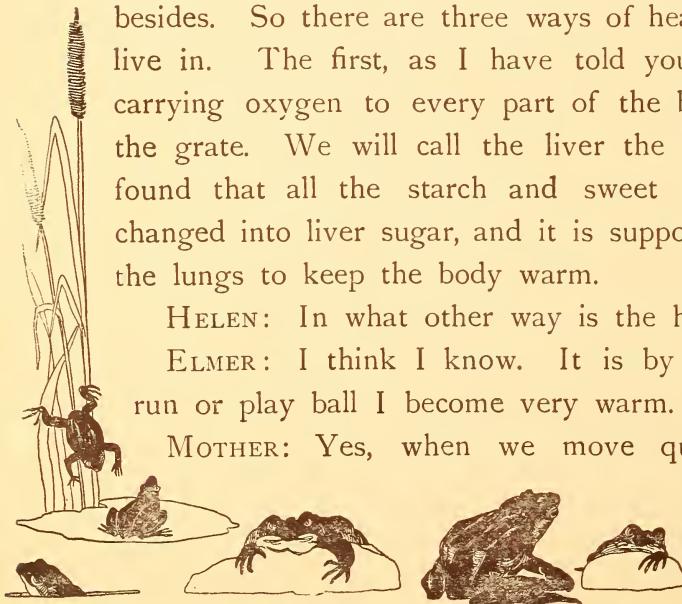
AMY: But I shouldn't think that blood going around with oxygen in it would keep us warm.

MOTHER: If that was the only way to heat the body, it would not. Where it is very cold, some houses have a grate; there may also be a furnace, and perhaps a stove besides. So there are three ways of heating the house we live in. The first, as I have told you, is by the blood carrying oxygen to every part of the body. That is like the grate. We will call the liver the furnace. We have found that all the starch and sweet things we eat are changed into liver sugar, and it is supposed this is used in the lungs to keep the body warm.

HELEN: In what other way is the house heated?

ELMER: I think I know. It is by exercise. When I run or play ball I become very warm.

MOTHER: Yes, when we move quickly, we breathe



faster, and the blood goes bounding through every part of the body, so the fire inside burns brightly. Sawing wood is a good way to warm a cold boy, and a broom is a fine helper to warm a cold girl.



"A good way to warm a cold boy."

AMY: When it is frosty, we can see our breath. Is that the *smoke* coming from the fire inside, mother?

MOTHER: You may call it that if you like. When a candle burns, it gives off what we call carbonic acid gas, and we breathe out some of the same kind of gas. Water also comes out in the breath like steam from an engine, half a pint or a pint each day.

ELMER: Do some kinds of food make more heat than others?

MOTHER: Yes; all kinds of fatty foods make heat. In very cold countries people can eat more fat and keep well than in warm climates. Esquimaux eat a great deal of fat. A little Esquimau child would eat a tallow candle and enjoy it as much as you would an orange. I once read of some sailors who made a Christmas tree for some of those children in the frozen north. The tree was made of walrus bones tied together, and, instead of popcorn, fruit, and sweetmeats, they hung balls of fat on the tree. The



"A fine helper to warm a cold girl."

children thought it a great treat, and ate them as quickly as you would eat peaches.

AMY: How funny! But, mother, are not our bodies warmer in summer than in winter?

MOTHER: You *feel* warmer, it is true; but, no matter how hot or cold the weather may be, the body has always about the same warmth. I said *always*, but I mean when we are well. Sometimes we put the wrong kind of fuel into the furnace, and it makes a big fire, the house gets very hot, and we say we have a "fever." If we get two or three degrees cooler than we should

"We have a 'fever.'" be, that shows that something is wrong, too.

HELEN: But what keeps us the same whether it is hot or cold?

MOTHER: You know some stoves have dampers to govern the heat. When the body is in danger of becoming too warm, that is, when the body is well, all the little waste-pipes in the covering of our house pour out water so the skin is damp or moist, and if very warm it is wet. We might say we have thousands of little "dampers" to keep the heat just right. As the sweat dries, the body becomes cool; so in summer and in hot climates the people sweat much. In winter and in cold countries they perspire but little, and the tiny waste-pipes close as tightly as they can to keep the cold out and the heat inside.

PERCY: But when I had a cold my skin was hot and dry. Why did not the little dampers make me cool, then?



MOTHER: Because they were clogged so they could not. After a warm foot-bath and a hot lemon drink, you began to sweat and soon became well. If nothing had been done to open the waste-pipes, you might have had a serious illness.

ELMER: Does alcohol make the body warm? I once heard a man say it was so cold that he must take something to keep him from freezing, as he had a long journey before him.

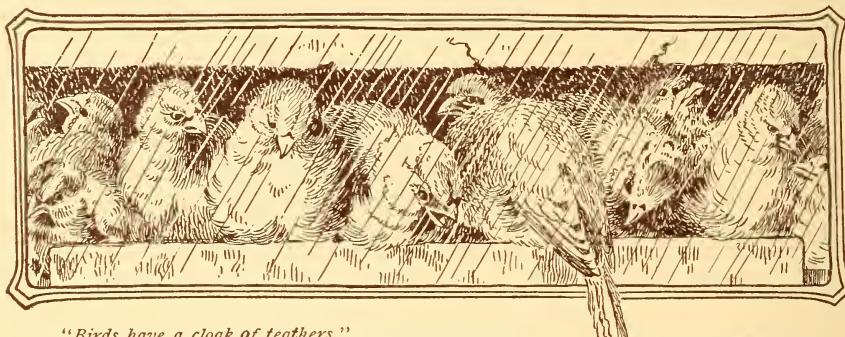
MOTHER: I am sure he did not know the effect of wine or alcohol or he would not have said that. When first taken, these stimulants drive the blood to the skin, and we *feel* warmer; but soon the blood goes back, after being chilled, and the whole body becomes colder. No, alcohol in any of its forms will not "keep out the cold," as people sometimes think. Men in frozen countries endure the cold much better when they take no strong drink of any kind.

HELEN: I once read of a party of twenty-six men who lost their way as night came on. It was very, very cold, and they had no way of making a fire. Each man had two blankets and plenty of food and whisky. Their leader told them to let the whisky alone; to eat supper, and then wrap up in their blankets and lie closely together. But only two besides himself did as he said, and, though they were cold, they did not suffer or freeze. The others thought the whisky would keep them warm. Three drank a very little, and they did not freeze. Seven others, who drank more, had their toes and fingers frozen. Six, who drank still more, were so badly frozen that they never got over it. Four, who became drunk, were frozen so that they soon

died; and three, who drank so much that they became "dead drunk," were dead in the morning.

MOTHER: That was surely a good test, showing how much alcohol can do toward keeping the body warm.

PERCY: Why do we need clothes to keep us warm? The birds and animals don't wear any?



"Birds have a cloak of feathers."

MOTHER: I think they do. The birds have a cloak of feathers, which they puff out to keep them warm when it is cold. The horse and cow have coats of hair. The sheep has a thick woolen dress. Animals living where it is very cold have warm suits of fur. Our skin is not covered as theirs is, and our bodies would lose much heat if exposed to the air. Food makes heat, and our clothes keep us from losing it. We need clothing to keep us warm.

HELEN: But people do not need clothing in warm countries.

MOTHER: And they do not wear much; but we would need it if there, to keep the hot sun from scorching the skin. We should never wear heavy clothing, and it should be made so loose that it will not hinder the growth or

movements of the body. The shoulders should carry its weight. When the warm days of spring come, it is not best to be in a hurry to leave off our warm under-clothing. Many persons have died because of doing so.

AMY: Should our clothes be changed often?

MOTHER: At least those worn next the skin should be, in order that we may keep neat and clean. Clothes worn in the daytime should not be worn at night, and night-clothes and bedclothes should be kept fresh and well aired. If the clothing we are wearing gets wet, it should be changed at once. Never wear wet shoes or stockings or wet clothing of any kind. Which part of the body do you think should have the warmest clothing?

AMY: The part farthest from the heart; for that would get colder than any other.

MOTHER: Yes, the limbs should be warmly clad; for the blood often gets chilled before it reaches the fingers and toes, and that is why they get cold sooner than do other parts of the body. Yet I have seen many little boys and girls with warm coats and furs around the chest, where there is the most heat, and a part of the tender limbs had no clothing. That is like trying to keep the furnace warm, and letting the rooms farther away have no heat at all.

PERCY: I should think children dressed in that way would be ill.

MOTHER: Many of them are. They often have bad colds, and sometimes the lungs get so much blood, because it is chilled away from the parts to which it should go, that they can not do their work properly; the throat becomes

sore, and the poor child may lose its life because the mother did not know how to dress it. Your father, though he is a strong man, would suffer if clothed in that way. Let us see if we can not make some good rules for clothing the body.

ELMER: I will make the first, which is, Wear loose, light clothing.

AMY: Then don't be in a hurry in the spring to change warm clothes for those that are cooler.

HELEN: We should keep all our clothing neat and clean.

PERCY: That which is worn in the daytime should not be worn at night.

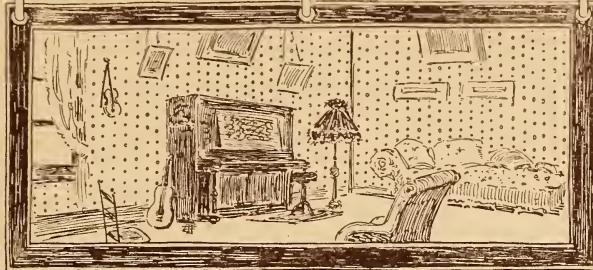
AMY: That makes me think of another: Nightclothes and bedclothes should be fresh and well aired.

ELMER: And we should change our wet clothes for dry ones.

PERCY: The limbs should be as warmly dressed as any part of the body.

MOTHER: Well done. I think these are all good rules. Let us see how well we can keep them.

# THE MUSIC ROOM



**M**OTHER: Do you think of any musical instruments which need air when they make a sound?

PERCY: The cornet, flute, and horn.

AMY: And the organ, too.

MOTHER: Yes; all of these and others as well must have air to make sound. But I wanted to tell you that in the wonderful house we live in there is the most perfect organ you can imagine. I am sure there is none like it, none that can make such sweet music, and I have seen many, and heard the largest pipe-organ in the world.

HELEN: Where can it be?

MOTHER: And it not only makes the finest, sweetest music, but it can laugh and talk. Sometimes its tone is soft and sweet, but it can be made loud and harsh if the master wishes. This curious little organ has a room all to itself, and—

ELMER: Do you mean the voice?

MOTHER: There! you guessed it the first time.

AMY: Where is the organ, mother?

MOTHER: In the top of the windpipe, in the throat. It is really a part of the windpipe itself, and this curious little

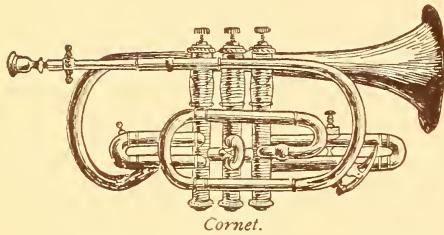
room has walls at the sides, but no floor. The little trap-door which keeps food from going to the bath room forms the top of the music room.

PERCY: How large is it?

MOTHER: It is larger in men than in women, and you can see the front part in a boy's throat. Sometimes it is called "Adam's apple." I once read that perhaps the reason it has this name is because when Adam was eating his apple he was in such a hurry to blame Eve for giving it to him that a quarter stuck in his throat. We know that he laid the blame on Eve for his eating the forbidden fruit, but whether it was apples or some other kind of fruit I do not know, so you need not believe this story.

ELMER: But I would like to know what causes all the different sounds which are made by the voice.

MOTHER: I will try to make it as plain as I can. Near the top of this room two cords are stretched across from front to back. These cords stretch like India-rubber, so they can be made tight or loose. There is an open space between them, where the air can pass through, but the other space is filled up. Did you ever see the little piece of brass in an organ called a "reed"?



HELEN: I saw one when our organ was cleaned.

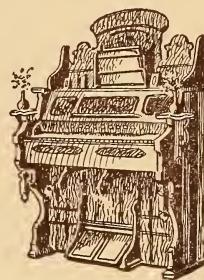
MOTHER: Here is a picture of one. You see it has a little tongue, and when air is blown through the opening in the reed, the tongue vibrates, that is, it goes up and down so fast that you can hardly see it, and this makes the sound. The smaller the tongue, the faster it will vibrate, and the tone will be higher.



*Organ reed.*

AMY: But how is it that we can speak and sing low or high?

MOTHER: Our lungs are like the bellows of the organ, and the voice cords are like the reeds. When the master of the body wants to speak low, he sends an order to some muscles in the throat to let the cords hang loose. If he wishes a high tone, he tells them to stretch the cords tight. If he would make no sound, the cords hang loosely, and the air passes between them without making any sound.



*Organ.*

ELMER: How strange that, with only two cords, we can make nearly all tones made by the piano, which has so many!

MOTHER: That shows how much better God can make anything than men can. Perhaps the violin is more like the voice; for it can make more tones on fewer cords; but, though it can be made to produce very sweet sounds, it can not be compared to a trained voice, which can speak words and make music at the same time.

HELEN: I'm glad I can talk and sing.

MOTHER: The voice is a gift of God. How we pity

a person who is dumb! Every one should learn to speak in a clear, gentle voice. A harsh word wounds the one to whom it is spoken; and the tone often strikes deeper than the words. We have all felt soothed and comforted by kind, pleasant words. All who can should learn to sing.

“If you have a pleasant thought,  
Sing it, sing it;  
Like the birdies in their sport,  
Sing it from the heart.”

“It is not so much what you say,  
As the manner in which you say it;  
It is not so much the language you use,  
As the *tones* in which you convey it.

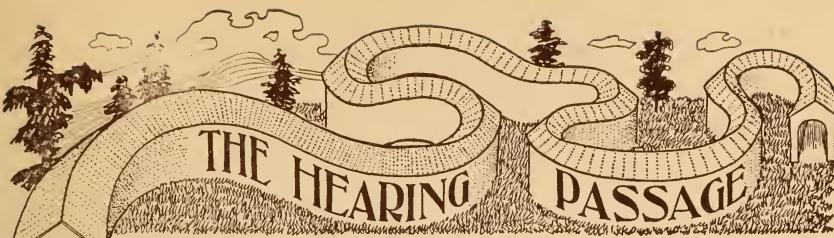
“‘Come here,’ I sharply said,  
And the baby cowered and wept;  
‘Come here,’ I cooed, and he looked and smiled,  
And straight to my lap he crept.

“The words may be mild and fair,  
And the tones may pierce like a dart;  
The words may be soft as the summer air,  
And the tones may break the heart.

“For words but come from the mind,  
And grow by study and art;  
But the tones leap forth from the inner self,  
And reveal the state of the heart.

“Whether you know it or not,  
Whether you mean or care—  
Gentleness, kindness, love, and hate,  
Envy, and anger are there.

“Then, would you quarrels avoid,  
And in peace and love rejoice,  
Keep anger not only out of your words,  
But keep it out of your voice.”



MOTHER: While we have but one voice room, we have two hearing rooms or passages, and they are the most wonderful of any you ever did see. One is placed on each side of the head.

ELMER: Those are the ears, I know. Please let us send a sound through them, mother, and you tell us what it finds.

MOTHER: Very well; and we will suppose this sound has eyes as well as a tongue, and it will tell us what it sees. Now listen:—

All sounds are made of such tiny waves, so very, very small, that you can never see them, yet they are something like those you see when you throw a stone into the pond. The first thing a sound finds when it wishes to visit the master of the body-house, is a pretty porch just outside of the passage made for it to enter.

AMY: What does it look like?

MOTHER: Something like a shell, and it is a pretty, pale pink color. I suppose it was made this shape so it can catch and hold sound; for I have seen some people living in old houses put up their hand to make the porch larger so they could hear better.



*"Something like a shell."*

PERCY: I have often seen grandfather do that, but I never knew why before.

MOTHER: Each sound finds a little door, which always stands open, and, though it is very small, the sound finds no trouble to get inside. This part of the passage is covered with sticky yellow wax, which is there to keep out anything which should try to go in except different kinds of sounds.

ELMER: How long is the passage?

MOTHER: Only about an inch, and it seems quite like a tunnel dug in a rock, only this is made in bone instead of stone. At the end there is a round curtain, which is drawn close and tight, like the head of a drum, so nothing but sound can get through.

PERCY: But what I would like to know is how the sound can get inside.

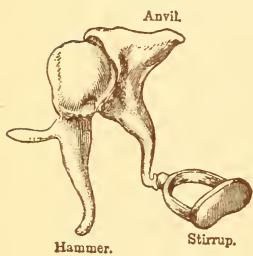
MOTHER: Oh, there is nothing hard about that! It may seem quite like a fairy story, but all it has to do is to knock, and then it is on the other side.

HELEN: How strange! And what does it find there?

MOTHER: Things you would never expect to see, I am sure: First, a hammer, that strikes with its handle end on the curtain, or ear-drum, as soon as sound gives a knock, and with the other end it strikes a little anvil, and the anvil kicks against a tiny stirrup. Here is a picture of them. They are all made of bone.

ELMER: Well, this beats anything we have heard yet.

MOTHER: I don't wonder you say so; for the wisest



men, who have studied the body-house for years, say the ear is one of the most wonderful parts of the body. When boys or girls have two drums, two hammers, two anvils, and two stirrups in their heads, it is no wonder that it takes plenty of noise to make them happy.

It makes me think of two little fellows I saw playing with a toy engine a few days ago. They had their mother's knitting-needles in the smoke-stack, and as they dragged the toy over the floor, it made a fine jingle. The mother, however, wished to talk with a lady friend, and asked them to take out the needles, so they would not disturb her. "But it won't make any n-o-i-s-e then," said the older boy in a whining tone. I suppose the noise was a delight to all the tiny hammers and anvils in his ears; and it is much the same with every boy.

But I forgot to tell you that there is a way to reach the inside of the ear without going through the ear-drum.

AMY: Please tell us how.

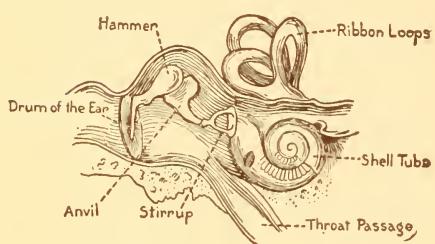
MOTHER: By going the same way that air takes to go to the lungs; you will find a little door just before you come to the music room, which leads to the ear.

PERCY: But why should there be *two* passages to get to the inside?

MOTHER: For the very good reason that air is so heavy; if it should press against the ear-drum, it would break it, unless there was something to press just as much against the other side. So some nice, warm air goes up from the throat, and as it is just as heavy as the air outside, it makes the weight alike on both sides.

I once heard of a girl who was asked how air could get inside of the drum of the ear, and she said, "Through the *other* ear." Her mates in school all laughed at such a thoughtless answer. You will now know better than to make such a statement if the question were asked you.

PERCY: But I would like to know what else a sound finds in the ear besides hammers, anvils, and stirrups.



way, some shaped like loops, and one of them very much like the inside of a shell which winds round and round.

HELEN: And are all these little tunnels empty?

MOTHER: No; they are filled with clear water. If you had a very strong mi'cro-scope you would see some things in the ear which would fill you with wonder. First of all we find a little bag floating in the water, made of fine skin, that just fits into all the loops and tunnels. What do you suppose is in this tiny bag?

AMY: I'm sure I don't know. Please tell us.

MOTHER: It is full of water, too, but it takes only a drop to fill it. Though this dainty bag is so small, yet there is room for some little stones in it, which we will call ear-stones. The picture shows the road sound travels, only this is much larger than the ear really is.

MOTHER: I think you can understand what I say better if you look closely at this picture. This is very much larger than the ear inside your own head. You will see that there are tiny tunnels running every

PERCY: I should think it would get lost before it finds the end of all these winding passages.

MOTHER: It has no trouble in finding its way, and finding it quickly, too. Suppose we start now from the outside porch again, so you will not forget the road. First, it goes through the ear passage and knocks against the ear-drum. This makes the handle inside strike the drum, and the other end hits the anvil; the anvil makes the stirrup tremble; and as sound passes along, that makes the water with the little ear-stones in it tremble also.

ELMER: But what I want to know is how the sound gets into the brain so the master knows what it has to tell him. I don't see any use of its going through all those tunnels and staying there.

MOTHER: You may be sure it does not stay there unless there is something wrong with the ear. One of the wires from your telephone system, which you call nerves, passes through a little hole in the skull, and it spreads out on the inside of the tunnels, and all sounds are carried by these nerves into the brain. As soon as one goes in, the master knows what kind of sound it is.

AMY: I don't see why it should go through so many tunnels.

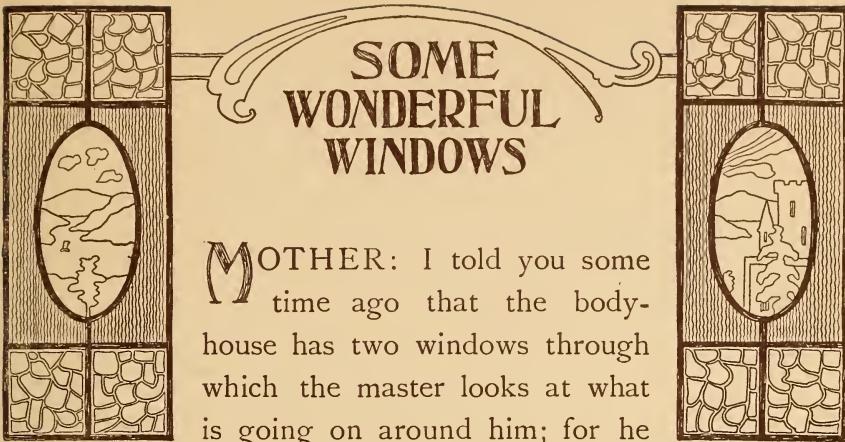
MOTHER: I suppose He that formed the ear knows why, but I don't. A very high sound goes through the shell tube. A very loud sound travels through the loops.

HELEN: I suppose sweet sounds please the master of the house most, such as good music.

MOTHER: Yes; he does not often like loud, harsh

sounds. Pleasant tones please him so much that he will sometimes sit for hours listening to them. People talk much about the in'stru-ments of music they have made; but they are nothing when compared with the in'stru-ment God made for hearing them.

This shows us that we should be very careful of our ears, that they may not be injured and we lose our hearing. We should never strike a child on the head or ears; for it may make him deaf. I know a young man whose grandfather "boxed his ears" when he was a little child, and from that time he began to lose his hearing. When we think what the world would be to us if we were not able to hear the songs of the birds, the voices of those we love, and all the other sounds which give us pleasure, it should cause us to guard our ears from the slightest injury.



## SOME WONDERFUL WINDOWS

MOTHER: I told you some time ago that the body-house has two windows through which the master looks at what is going on around him; for he never goes outside as long as he lives.

HELEN: Oh, I remember! Those are the eyes.

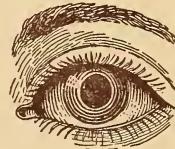
MOTHER: Yes; and you may be sure that the One who made the house did not forget to make it to enjoy the light. The Bible says, "The light of the body is the eye." Most dwelling-houses have quite a number of windows, but though ours has but two, they are so made and placed in such a way that the master can see in every direction. Of what shape is the eye?

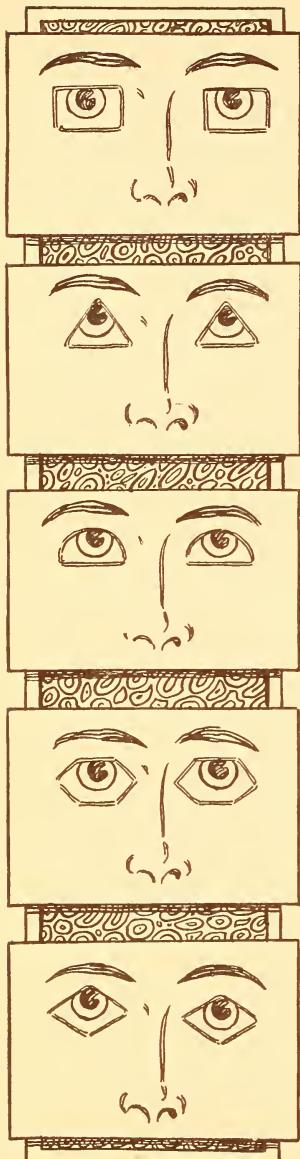
AMY: It is nearly round, like a ball.

MOTHER: Now see how many ways you can look without moving your head.

ELMER: Up and down, to either side, and in a circle.

MOTHER: And by turning the body we can look any way we please. There is a fly which is said to have twenty-five thousand eyes, but even with so many it can not see more than we can with two, if we turn the head. Another thing which shows the wisdom of our heavenly Father is the





*It would not be well to have eyes shaped like these.*

position of our eyes. How strange it would seem if they were in the palms of our hands, or in the side or back of the head, or any other place in the body than just where they are!

PERCY: Just think of it! Why, they would get hurt, and how strange we would look!

MOTHER: But we can see only the front part of the eye. Why would it not be as well to have eyes shaped like these?

PERCY: We could not roll them every way, as we can now, and they would not look well.

MOTHER: Then you think they have the very best shape they could have. I think so, too. Now you may each feel around your eyes and tell what you find.

AMY: There is hard bone all around them.

HELEN: They seem to be in a hollow place in the skull.

MOTHER: Yes; and this hollow place is called a socket. They are placed this way to protect them from harm, as we would place precious jewels in a strong casket. The eye, like a round ball, fills the socket or cave in which it lives

and moves, and behind and around it is a soft cushion of fat.

ELMER: A ball hit my eye to-day, and it just seemed to go in, so it didn't hurt much. This must be because it was resting on such a soft cushion.

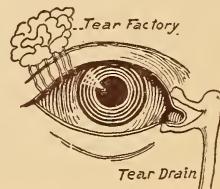
MOTHER: And we see how the eyes are kept from in'ju-ry, too, by the little porches, or eyebrows, above. The stiff hairs, like a hairy arch, keep the sweat from running into them, and they also add beauty to the face. Then there is a pair of curtains for each one.

AMY: I know what they are,—the eyelids.

MOTHER: And like a double curtain, or shutter, they close to keep the eyes from harm whenever danger is near. Quick as thought they shut tightly together; and each one has a hairy fringe to keep out dust or other objects hurtful to the eyes. Each of these curtains, or awnings, is placed in charge of two servant muscles, one to raise, the other to lower it, and they play up and down without noise or a hitch anywhere.

HELEN: And when we go to sleep, they softly close the window until we wake again.

MOTHER: These windows in our house also wash and keep themselves clean. There is a tiny factory above the eye, where tears are made. Perhaps you have often wondered where tears came from, and now you know. As the eyelids move up and down, the tears keep running over the eye, which makes it move so easily in the socket that it does not ache or wear out, and they keep it clean and



bright. There is a little drain-pipe opening on the inner side of each lower eyelid, which carries away the tears into the nose after they are used.

If we are sad or unhappy, sometimes so many tears are made that they can not pass through these drains, and then they run over the eyelids down the cheeks. There are also some little factories in the eyelids which make an oil for the edges of the lids, so they will not stick together, and



*This little boy's tears have "come unfastened."*

to keep the tears from running over the face.

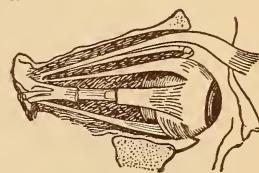
PERCY: I never knew before where the tears came from, and that they were being made and used all the time.

HELEN: Nor I. Not long ago I read about a little girl named Margie who never cried when any small mishap came to her. But one day her best-loved dolly fell and got a dreadful bruise on her nose. Margie winked hard a few minutes, and then buried her face in her mother's lap, sobbing, "O mama, I don't *want* to cry, but *all my tears have come unfastened!*"

MOTHER: Poor child! she was nearer the truth than she thought; and no doubt many folks, big and little, would be glad sometimes if they could keep their tears fastened up better. Have you ever thought why your eyes do not fall out when you bend over?

AMY: They must be fastened in tight.

MOTHER: That is true; for they are held by six little muscles, whose work it is to keep them in place and move them about.



*Muscles of the eye.*

ELMER: But what is inside of the eye, mother?

MOTHER: Let us look at the outside a little longer before we talk of the inside. Because the colored part of the eye is round, it is called the eyeball. It is with this part we see. The white part of the eye is filled with a clear substance, quite like jelly, and it has several strong coats or coverings outside. What part of the eye do you think we see through?

HELEN: The black spot in the center.

MOTHER: What is it called?

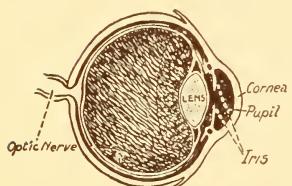
PERCY: The pupil.

MOTHER: Now look into each other's eyes. What do you see around the pupil?

ELMER: There is a blue ring in Amy's eyes.

MOTHER: This is called the iris, which means a rainbow. You know we all like to see pretty curtains hung before windows, and such beautiful curtains you never saw as these in the eye. They are only half an inch wide, but they open or draw together around the pupil so the eye has just the right amount of light. When you are where it is very light, this wee round curtain draws up very small. If you are in a dark room, it opens wide, so the eye can have all the light there is. Sometimes these curtains are brown, gray, or blue, just the color which will match the outside of the house best.

AMY: But won't you please tell us, mother, how we see with our eyes.



MOTHER: I will try, and perhaps we can find out some things about it. Here is a picture which may help us. You see the front of the eye bulges out like a watch crystal, and it has a strong, glassy covering, called the cornea, which lets the light through. Passing through the pupil we come to the lens, which is shaped as you see in the picture. You have seen old persons wear spectacles to help them see. The glasses in the frames are lenses; but you must not think from this that the lens in your eye is made of glass. It is because of the shape that it is called a lens. A picture of people, houses, trees, or anything else you look at, is made by the lens on the inner part of the eye, which is called the ret'i-na. It is almost wholly made up of the little branches of the nerve of sight.

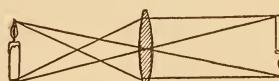
HELEN: And is that the way we see?

MOTHER: Partly. The picture passes through the clear, jelly-like substance of the eye to the back, where it is spread out, and the nerves of sight carry it into the brain, for the master to see. We may have perfect eyes, but if anything is wrong with the eye nerve, we can not see; so we really see and hear with our brain instead of our eyes and ears.

ELMER: Isn't the eye something like the camera used to take photographs?

MOTHER: Yes, in some ways. One curious thing about it is that it turns its pictures upside down before they strike the nerves of sight, and in this it is like the camera.

HELEN: I am so glad that we all have good eyes.



*Pictures upside down.*

MOTHER: And well you may be. We should always take the very best care of our eyes. Alcohol makes them red and bloodshot; for it makes too much blood go into them, just as it does all over the surface of the body. Tobacco injures them by making the nerves weak. It is a dreadful thing to be blind or have weak sight, and while we prize our eyes we will never take such poisons to injure them.

PERCY: I wish I could get a peep at the master when he looks through the windows.

MOTHER: You may at any time. We know just how he feels by the "look" of his eyes. When he is displeased and angry, they look so hard that it almost seems as

though sparks flew from them. When he is pleased, they light up with kindness and pleasure, and you wish to be near him, he seems so happy, and it makes you glad, too. When he is loving and kind, there is such a tender feeling shines through that it seems like a warm, comforting fire, and you love him better than ever before. So the eyes "speak," though they never say a word.

#### MY TWO WINDOWS.

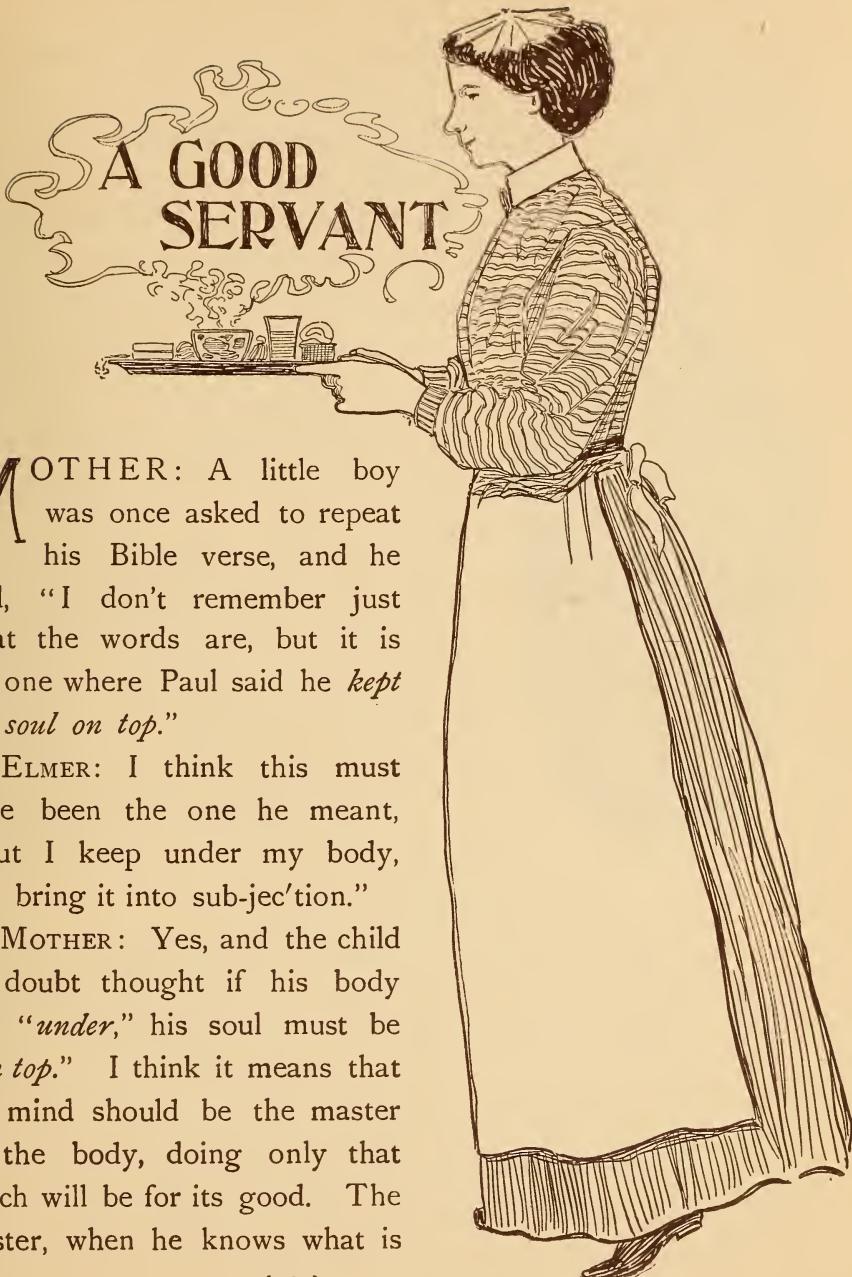
"Two wonderful windows  
The Lord gave me;  
And through these windows  
His wonders I see.

"The beautiful flowers,  
The grass and the trees,  
The hills and the valleys,  
The birds and the bees,

"The faces of parents  
So dear to me,  
The stars in the sky,  
The fish in the sea,—

"All these through my windows  
Most gladly I see,  
And praise my Creator  
For giving them me."

—C. M. Snow.



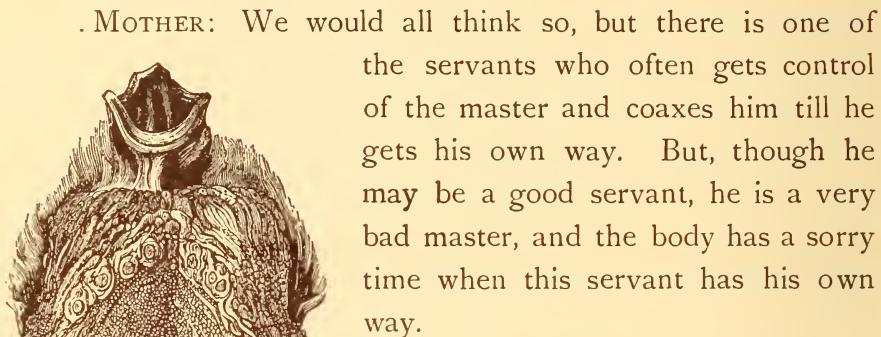
MOTHER: A little boy was once asked to repeat his Bible verse, and he said, "I don't remember just what the words are, but it is the one where Paul said he *kept his soul on top.*"

ELMER: I think this must have been the one he meant, "But I keep under my body, and bring it into sub-jec'tion."

MOTHER: Yes, and the child no doubt thought if his body was "*under*," his soul must be "*on top.*" I think it means that the mind should be the master of the body, doing only that which will be for its good. The master, when he knows what is

best, will not let one of his servants be master instead of himself.

HELEN: I should think every one would want to do what is best to keep the body well.



AMY: What is the servant's name?

MOTHER: He is called Taste. His room is the passage where we found so many servants dressed in white. He wears a pink dress, and stays in the house most of the time, but once in a while he peeps out between the folding doors.

AMY: That is the tongue, I know.

MOTHER: Yes, that is where we find Taste at home. Sometimes when he has his own way, his dress becomes a dirty yellow or brown color, and if the master finds himself quite ill, he sends for a doctor, who comes, and about the first thing he does is to ask the tongue to step outside a moment, and as soon as the wise man looks at its dress, he knows whether Taste has been doing his duty or not.

PERCY: But what is his duty?

MOTHER: To tell the master what is good to build and mend the body, and to help him enjoy his food. If some good whole-wheat bread, oatmeal, or some fresh fruit passes the guards, Taste rolls it over and over and sends word to the master through some of the little telephone wires: "This is very good. I think we will have more of this." Then the servants in the kitchen are pleased, and all goes well. You have heard that

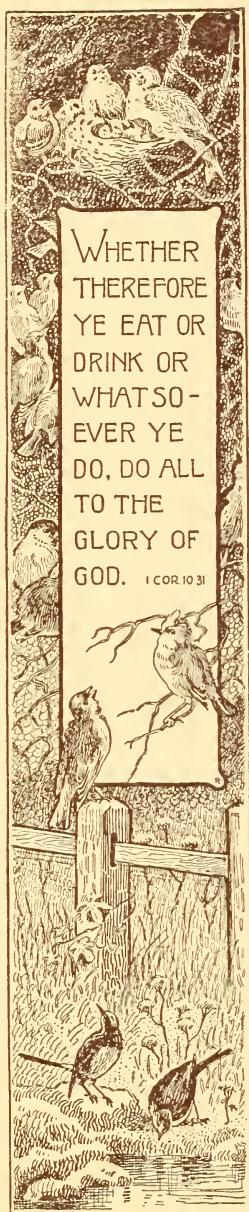
"Little Jack Horner sat in a corner,  
Eating a Christmas pie,"

but I have read of another boy, who bore the same name, and this is what is said of him:—

"Little Jack Horner  
Sat in a corner,  
Eating a morsel of nice brown-bread.  
'Have some pie or some cake?'  
'Nay, not I,' with a shake  
And a toss of his wise little head;  
'For this bread will make bone,  
And teeth white as a stone,  
That neither grow soft nor decay;  
But rich cake and rich pie  
Sure will break by and by  
My good health, and that never will pay.'"

HELEN: But does Taste not ask for more than the body needs sometimes?

MOTHER: Yes, very often; and that is one of the times when he needs a firm master. At other times he gets in such a hurry that he lets the food go down to the kitchen before it is half ready.



ELMER: But does Taste ever want things which are not good for the body?

MOTHER: Yes, many, many times. He coaxes so hard that I have seen some boys and girls even cry for that which would make them ill. If given a good piece of bread, they wanted pie or cake or some other hurtful thing. One thing I must tell you about Taste: If he has nothing at all given him when he gets the sulks, after a while he is very well pleased to get even plain food, and as he rolls it over and over, he says by his actions, "It tastes much better than I thought it did."

AMY: A lady once asked me if I had a sugar tooth, mother. What did she mean?

MOTHER: When one's taste calls for a great many sweet things, people sometimes say of such a person that they have a "sugar tooth," but it is Taste, and not the teeth, who wants to be pleased that way. Candies, lollies, and sweet foods are bad for the teeth as well as the stomach; but Taste often begs for them, even though they do harm in the body. He sometimes learns to like what he dislikes very much at first, so you see it is the

master's duty to give him only that which he knows is best.

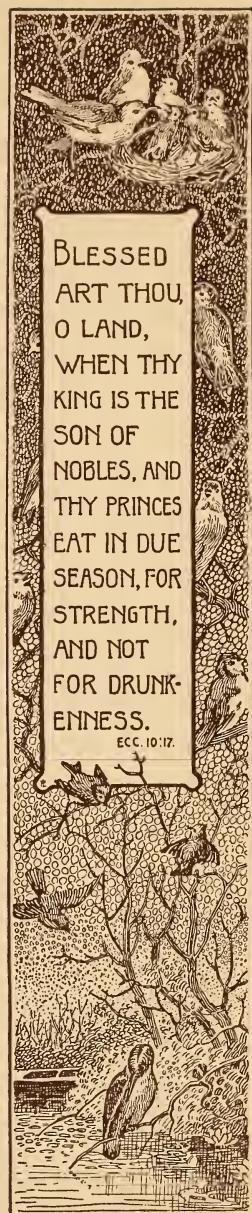
He often does great harm by asking the master for things to taste when the kitchen is full and the cook does not wish to be disturbed in her work. Really I think you will agree with me that he is a very selfish fellow, and cares more for his own pleasure than for the comfort of others or the welfare of his master. If he has his own way, it makes the master cross, and everything seems to go wrong.

HELEN: I shall try to teach my Taste to call for only those things that will make my body well.

MOTHER: If you do, you will sometimes have a quarrel with him, but all the other servants will be glad that you do not let him master you. That is one way the Bible means we should keep our bodies under. Sometimes we have to take Taste by the throat, as it were, and when we have him down, let him know that we are his master, and that we intend to rule our own house.

PERCY: Isn't that the way people do when they leave off drinking wine and beer, and stop using tobacco?

MOTHER: Yes; and sometimes they



have a terrible fight with Taste before they convince him that they intend to be master. Sometimes he gets them down, and again they put him under; many have fought the battle for weeks, it may be for months, night and day, and at last Taste gives up and the master wins.

HELEN: Wouldn't it be better if they did not let him have his own way at first?

MOTHER: Surely it would. That is why I wish you, while children, to train your Taste, or appetite, so he will only call for the things which are best for your bodies, and so you will form no bad habits of eating and drinking. Then you will not have the battles of which we have been speaking; for, as I have said, Taste is a good servant. All he needs is to be taught that he must keep his proper place, and that he is not to rule the house. If boys and girls begin to eat between meals; if their Taste calls for rich food and sweetmeats; if they want spices, pepper, mustard, and hot sauces with their food, they are letting Taste become their master, and it will be easy for them to begin to use cigarettes and to drink beer. When they open the gate for Taste to become master, they know not where they will end. They have entered the path to death and ruin.

ELMER: I should think that this servant has more power to do harm than any of the others.

MOTHER: He has. Next to the master himself, he holds the most important position of all. Not only does Taste live in the tongue, but it is with the tongue that we talk. It is such an unruly fellow that it is fastened to the

floor so that it can not get away; there are strong walls all around it; a double row of servants stand in front to guard it; and the double doors are made to shut closely,

to keep out anything that should not go in, and to keep back anything that should not come out. Yet for all that it is so unruly that it often puts the master to shame, and wounds his best friends. The Bible says that if any one can control the tongue, which means, I suppose, their taste and talk, he can govern his whole body.

AMY: Who would think that such a little fellow could do so much harm!

MOTHER: Little things may do much good or evil. A bridle is a

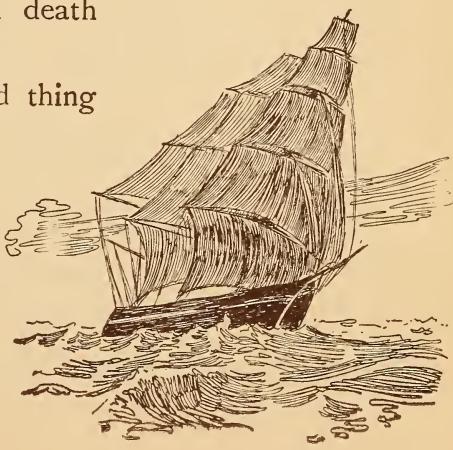
small thing, yet the bits turn the horse any way we wish him to go. I was once on a great ship at sea. There was a fearful storm. In the ship there was a little helm, which turned it any way the captain wished it to go. So it is with the tongue; life and death are in its power.

PERCY: But isn't it a good thing to taste and talk, mother?

MOTHER: Yes, indeed. Animals can taste, but they can not talk, or laugh. This is one thing that makes us of a higher order of beings than



"The bits turn  
the horse."



"A great ship at sea."

they. What a blessing kind, gentle words are! How thankful we should be for a keen Taste, which helps us to enjoy our food! On the other hand, what pain and sorrow come when angry words are spoken, and how much sickness and death are the result of letting Taste have his own way! What we want is that the master of the body-house should keep this servant as with a bit and bridle; for he will obey if he must.

HELEN: I shall be more careful of my tongue after this.

MOTHER: But the Bible says again, "The tongue can no man tame." We can never master it in our own strength. We must ask God to help us; for we can never control our Taste or our talk without His aid.



## A FAITHFUL WATCHMAN

AMY: Here are some violets for you, mother. I just gathered them in the garden. See how fragrant they are.

MOTHER: They are indeed, and I thank the little girl who was so kind and thoughtful. Did you ever think of the sense which makes us enjoy the flowers and all pleasant perfumes?

AMY: Why, yes; we smell them, do we not?

MOTHER: Yes; and now let us see if we can learn a few things about this sense which gives us so much pleasure. You may each take a few of these violets. How shall we find out where Smell lives?

PERCY: He must be in the nose.

MOTHER: I suppose you think so because you do not put the violets to your ears, eyes, or mouth to enjoy their odor, but hold them near your nose. Now hold them quite close to it and breathe out.

ELMER: But we can't smell anything when we do that way.

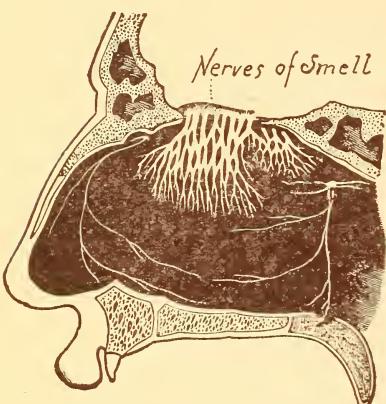
MOTHER: No; then when we enjoy the sweet flowers, we place them near the nostrils and draw a deep breath, and we say, "Ah, how sweet!" We do this so that more air will touch the nerves of Smell, which are in the upper

part of the nose. These little nerves form the tiniest branches you can think of, and all unite in one large nerve, which goes to the brain. They quickly tell us about things we can neither taste nor see. They are thickly spread over this room of Smell, which is indeed a wonderful

place. Here is a picture of the nerves of which I have been telling you.

PERCY: I think in a dog Smell must have good nerves.

MOTHER: Yes; for some dogs will follow the footsteps of their master, though he has been out of sight for hours, and Smell is so keen that they use him in tracking game while hunting.



Some Indians in South America can tell if a stranger comes near them, even in a dark night, by the use of Smell alone. They can also tell if a stranger is black or white. In some people Smell is much keener than in others.

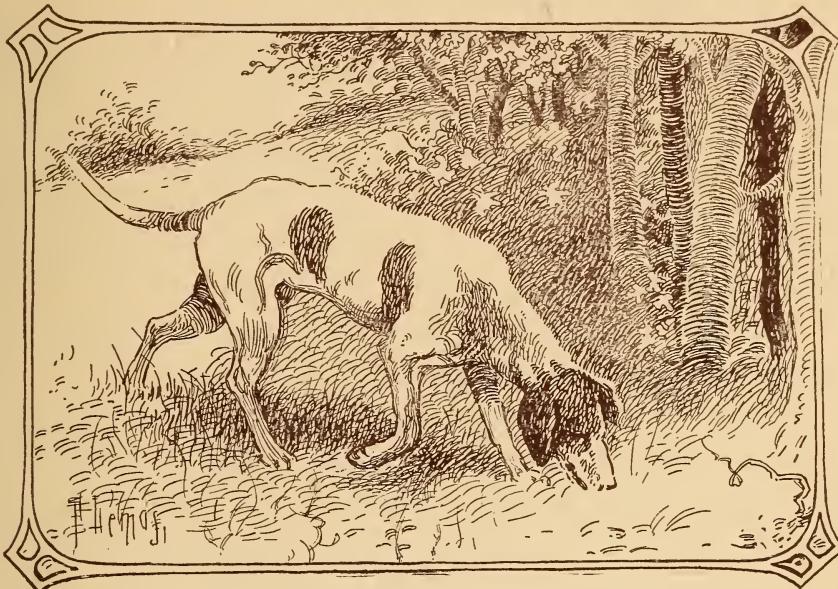
ELMER: When I had a cold last week, I couldn't smell at all.

MOTHER: Sometimes when one has a very bad cold, the opening into Smell's room gets filled up so that odors can not get in. People having a disease called ca-tarrh often can not smell at all.

HELEN: But of what use is Smell to us?

MOTHER: First, he helps us to eat proper food. We are not apt to eat anything which has a bad odor; at least

we should not do so. Smell might be said to be a twin brother to Taste, and part of his duty is to help Taste in selecting proper food for the body. Sometimes when



*"Dogs will follow the footsteps of their master."*

dinner is cooking, I hear you say: "Oh, how good it smells! It makes me feel hungry."

PERCY: I have often felt that way, but I didn't know it was Smell giving me an invitation to eat.

MOTHER: Another way Smell cares for the body is by giving us warning against bad air. Sometimes a lot of tiny folk called "germs" get into the air and make it unfit to wash the blood. These germs are "seeds of sickness," and should never be allowed to get inside the body. Sometimes they make the air smell bad, and then Smell

sends word to the brain: "Look out! Don't come here; for this bad air will make you ill."

AMY: And does that mean that the master should take the body away?

MOTHER: Yes; or if we go into a room which is close and musty, and the air is full of germs, it means to open the doors and windows, and let the clean, pure air come in. Sometimes Smell gets so used to bad odors that he does not give warning as he should; so we should always heed his counsel at first. Any place or thing which has bad odors should never be near the house.

HELEN: I think Smell must find some sleeping-rooms rather unpleasant places for him to stay in.

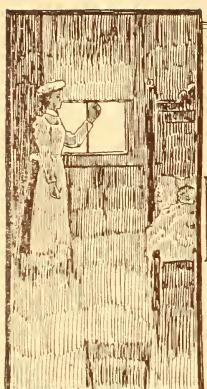
MOTHER: He cer'tain-ly does. Sometimes he gives the one who sleeps in such rooms quite a scolding. After he has been out in the fresh air, and comes back into the room, I im-ag'ine I hear him talking something like this: "Don't you know it is a *dreadful* thing for you to breathe air like this? How would you like to drink the water your face or your clothes had been washed in? But you have done worse than that: you have kept washing your blood in the same air, over and over again, all-night. It is no wonder that you have a headache and feel all tired out this morning. Now open the windows, and give this room a good airing, and if you sleep here another night, see that there are places where the good air can come in and the bad air go out, and I promise you I will not talk like this again."

PERCY: If the master of the house knew no better than that, he ought to have a lecture,

MOTHER: I think so, too. When air costs nothing, and comes whistling around every corner, begging to come in, we should never go without a good supply. There is one more way in which Smell is useful to us.

ELMER: How is that?

MOTHER: It gives us pleasure. When God made us, He desired that we should be happy; so He gave us eyes to see the beautiful things He has made, ears to hear the music of the birds, taste to enjoy the fine flavors He placed in our foods, and smell to breathe in the fragrance of the violet and the rose. We ought to be very thankful for all these senses, which make us happy.



## A GENTLE NURSE

MOTHER: You remember I told you that the body-house is all the time wearing out. Every time we think, move, play, or work, some part becomes worn, and must be mended. Blood, the care-taker, passes swiftly around every part, first up, then down; and every trip she makes, the bones take something to mend them; the flesh takes its part; the skin must have a share; the hair and finger-nails take something to make them grow; and so, while we study, work, or play, the mending goes on, and we hardly stop to think that it is done at all.

HELEN: This seems to me one of the most wonderful things about the body.

MOTHER: But there is another wonderful thing of which we have not yet spoken. When we are tired with the work of the day, and the sun goes down in the west, a gentle nurse steps in and says to the master of the body-house: "Please give me the care of your house awhile. I will rest you, and while I have you in charge Blood can do her work better, and in a few hours you will feel as good as new."

AMY: And does the master do as she says?

MOTHER: Sometimes he is not willing at first, but at last he is glad to hand everything over to her. Then she

quietly draws the curtains down over the windows, shuts the doors in the hearing passages, and the muscles of the arms and legs stop their work, the engine slows down, air goes into the bath room more slowly, all becomes quiet in the body-house, and the first thing the master knows he knows nothing at all.

ELMER: How strange to think that way of going to sleep!

AMY: Is Sleep the nurse, mother?

MOTHER: Yes, Amy; and a better one never lived. Sometimes when the house is all out of order, and the father and mother watch over some little body moaning with pain and tossing with fever, Sleep comes in and gives the dear child a long, sweet rest, and the good doctor says: "I am so glad! She will get better now." He knows that if he can get Sleep to nurse his sick people, they will all "do well." She is so kind that she comes of herself, takes us in her arms, comforts us, and when we are quite rested, she leaves us to do as we will till she is needed again.

*Gentle sleep.*

She never asks pay for her services, and the most skilful nurse never had such success as she in taking away care and worry, and in building up the house we live in.

PERCY: But why must we sleep, mother?

MOTHER: Because when we are awake, the body wears out faster than Blood can mend it, but if we go to sleep, she can mend faster than it wears out. We need sleep as much, and I sometimes think more, than we need food and drink. When we feel tired and drowsy, that is the call of the nurse for us to give ourselves into her care.

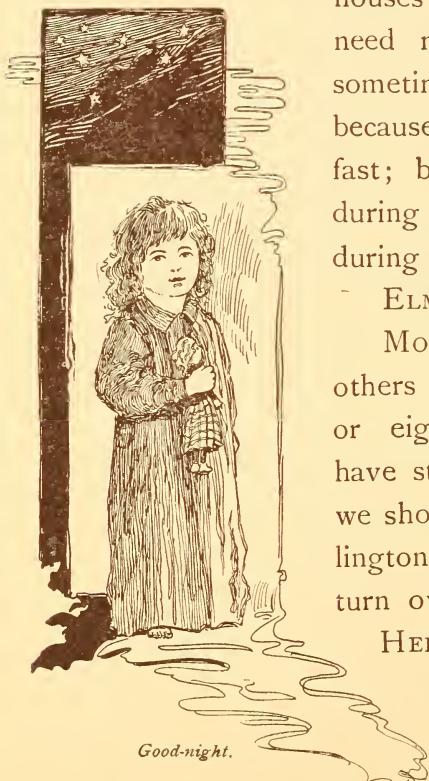
AMY: Should we sleep in the daytime?

MOTHER: Very young children should; for their body-houses are building fast, and so they need much sleep. Very old people sometimes need sleep in the daytime, because their houses are wearing out fast; but, as a rule, we should sleep during the night, and keep awake during the day.

ELMER: How long should we sleep?

MOTHER: Some need more than others do. Grown people need seven or eight hours' and children should have still more. When we wake up, we should get up. The Duke of Wellington once said, "When it's time to turn over, it's time to turn out."

HELEN: How can we get to sleep if wakeful when we go to bed?



MOTHER: Those who can not sleep well should spend much time out-of-doors during the day. One should not eat for several hours before going to bed; for if the stomach must work, it often keeps the rest of the body awake. Every one should have a clean bed, and sleep where he can have plenty of pure air. To work till one is tired, if not carried too far, will also help. But, even though a person does all these things, if he tries to sleep when the mind is worried or excited, the gentle nurse will not come. One of the best helpers to sound sleep is a clear conscience, and the knowledge that one has done his best in everything.

HELEN: I heard a lady say that she drank a cup of tea and it kept her awake half the night.

MOTHER: It often has this effect. If one has not been using it, this is more apt to be the case, and this shows that tea contains poison, and that it is not good for the body. When a person can not sleep, he should know that danger is near. The master of the house we live in must have rest. Sweet sleep is the best rest for a tired brain; for while Sleep has charge of the body, she cleans the brain and makes it bright and ready to do more work. If it does not get rest, it becomes ill, and sometimes people lose the right use of the mind; then we say they are insane, or crazy. That means that they do not know what they are doing. They may try to kill themselves or other people, and they must be locked up in strong rooms, so they can not get away and do themselves or others harm. Sometimes they get well, but many live for years

in this sad condition. It often comes because people injure their brains with strong drink.

PERCY: Do not people who sell such drinks often stay up late at night?

MOTHER: I think they nearly always do. The people who are at the saloons should be in their beds, letting their brains and bodies rest. When at last they go to bed, the brain is stupid because of the strong drink they have taken. They lie in bed long after the sun is up, and when they rise, they feel worn out instead of rested. The poor brain bears such treatment for a time, but at last reason is gone, and the person is ruined for life.

ELMER: What a shame! I know one lad who will never go where beer and whisky are sold, and who will have his sleep at night if he can get it.

PERCY: And I know another.

MOTHER: I trust that my boys will never do anything to hurt the brain and drive sleep away.

"Go to bed early—wake up with joy;  
Go to bed late—cross girl or boy.  
Go to bed early—ready for play;  
Go to bed late—moping all day.  
Go to bed early—no pains or ills;  
Go to bed late—doctors and pills."

—*St. Nicholas.*

# A WICKED THIEF



MOTHER: You know all houses are in danger from thieves. When no one is watching, in the dark night, they come and steal our money and the most precious things we have. There is also a bold thief who takes delight in robbing the body-house.

ELMER: But who can it be? I'm sure no one would want to steal me.

AMY: Nor me.

MOTHER: You know thieves always try to find some way to get into a house when they wish to steal, and this robber is just like the rest. It is a little over three hundred years old, and it grows more bold and cunning every year.

PERCY: Please tell us its name, mother.

MOTHER: It is called Tobacco. It was first found in America when the country was discovered, but it did not begin to steal from white men for nearly one hundred years. Sir Walter Raleigh, of whom you will learn in your history, took it from America to England. It is said that Sir Walter one day sent his servant for some beer, and he

came back sooner than was expected. He was greatly frightened to see smoke coming out of the mouth and nose of his master, and at once threw the beer into his face to put the fire out, calling loudly for help, and saying that his master was on fire inside, and would surely burn up.

HELEN: It is a pity there are not more such servants now, for they might cure some people of this filthy habit.

ELMER: But why do you call tobacco a thief, mother?

MOTHER: Because it steals.

PERCY: But what does it steal? I thought people just chewed, smoked, and snuffed it, and I can not see how that is stealing.

MOTHER: It steals health. Its first effect is to cause sickness and vomiting. Every servant in the body-house rises up in arms against it, and there is a great uproar as they try to defend their master from the deadly poison. The servants in the kitchen throw all there is in that room out at the front door. The lungs throw it out headlong in the breath. All the little waste-pipes in the skin work as hard as ever they can to push it out that way. The kidneys, bowels, and, in fact, every servant in the house, shows it the door, and will not let it stay inside if he can help it



*Tobacco.*

ELMER: But can't the master keep it out?

MOTHER: Yes, if he *would*. That is the trouble. But tobacco pretends to be such a good friend, and makes so many good promises, that the master believes its lies, and lets it in. Boys think they are almost men if they can only smoke cigarettes. Some men say "a good smoke" rests them when they feel tired. Others say they must have it "to keep their food down." Many smoke or chew because others do. And so tobacco deceives them all.

PERCY: But doesn't tobacco do some good, mother?

MOTHER: I have never heard of it if it does. The nicotin of tobacco is such a deadly poison that one drop will kill a cat in about three minutes. It does not take a large amount to kill a man in five minutes. If a tea is made from it, it will cause death in three hours. Sometimes soldiers who do not wish to do their duty will put a leaf of tobacco under the arm or over the stomach to make them sick.

AMY: I should think if it is such a poison it would kill people to use it.

MOTHER: It would if they took enough of it. You know arsenic is a deadly poison, yet some people take it in small doses and live a long time. When the servants of the body-house find that their master *will* use it whether it hurts them or not, they give up making so much trouble as they did at first; but they still keep turning it out as quietly as they can, and say but little about it.

PERCY: But I heard an old man say he had used tobacco for fifty years, and it never did him any harm.

MOTHER: Perhaps he did not know how much it had harmed him. Alcohol does not seem to hurt some people, and yet we have learned that it works mischief in every part of the body; and it is the same with tobacco. If such men do not suffer themselves, their children often suffer in their stead. Because a few can use these poisons without seeming injury, it does not make it safe for others to do so. While we are learning how to care for the body, we should not ask, "Will this do me *harm?*" but, "Will this habit do me any *good?*" Let us see what good tobacco does.

PERCY: It is good to kill sheep-ticks and plant-lice.

MOTHER: That shows how deadly it is, and how unfit for any human being to use in his body.

HELEN: I do not think there are many persons who would say it does them good.

MOTHER: We find that its first effect is to take away the appetite; and it hurts the stomach. Second, it does harm in the throat, making the voice coarse and husky, and men sometimes have a disease known as "smoker's sore throat." Third, it hurts the nerves, the wonderful telephone system; the tobacco-user is nervous, cross, and hard to please. Fourth, it weakens the eyes, and causes buzzing sounds in the ears. Fifth, it makes the heart weak, so a doctor can tell by feeling a man's pulse whether he uses tobacco or not. His hands become unsteady, and they tremble, and his heart trembles just as his hands do.

PERCY: I think that is enough, mother, to show that tobacco does no good, but a great deal of harm.

MOTHER: There is one more thing I wish you to know about this poison, and that is that it makes the master of the house weak. He feels so happy and rested while he is taking his smoke, that he thinks surely tobacco does him good and not evil. But the reason he *feels* rested is because his nerves have been put to sleep by the poison. Our nerves are like a faithful watch-dog. The first thing tobacco does is to put the nerves to sleep, just as a thief would kill a dog that would warn its master of his coming. You can see, I think, what a foolish thing it is for a boy or man to do anything which would put the faithful nerves to sleep so they can not warn him of danger.

ELMER: But, mother, do not the nerves wake up after a time?

MOTHER: Indeed they do, and then if the man can not get his tobacco, you will see how unhappy he can be; all his good nature and rested feelings have passed away. He soon finds this out if he tries to leave off the poison. He feels "all gone," and thinks that he must have something to brace him up. He becomes thirsty, and so the temptation comes to use strong drink. A doctor who knows, has said, "Nine out of ten of the boys and young men who become drunkards, have *first* learned to smoke or chew tobacco."

Tobacco makes that part of the mind which is called the "will" so weak that thousands who use it have no strength to resist the temptation to drink when it comes to them. Besides, the mind is so weakened that they

can not stop using tobacco even when they know it is hurtful to them, but they say—

“For thy sake, tobacco, I  
Would do anything but die.”

And many even die because they have no strength to let it alone. Boys think it makes them manly to smoke and chew. Manly, indeed! I wish I could speak to every boy in every land to whom tobacco comes, and tell them that if they wish to grow up clean, noble, unselfish, manly men, they will *never* taste tobacco. It does more to harm boys than men. One doctor has said, “Boys and young men who use tobacco lose one-fifth of the enjoyment and value, and at least one-tenth of the length of their lives.”

PERCY: But cigarettes are not very bad, are they, mother? I know many of the boys in school smoke them.

MOTHER: Bad! Indeed, they are very bad! They are made of the stumps of old cigars picked up in the streets, and from other vile, filthy things. Even the paper they are wrapped in, which seems so harmless, is steeped in deadly drugs, which makes them still worse. They are made and sold by millions, and thousands of boys are being ruined in mind and body because of using them. I often read in the papers of the death of some boy, caused by smoking cigarettes. I have no words to tell you the mischief they do; and yet thousands of people think them harmless.

AMY: I wish Uncle John wouldn’t kiss me, for he uses tobacco.

HELEN: You are like the little girl it tells about in the verses I learned. I will repeat them for you:—

“ ‘What ails papa, mother?’ said a sweet little girl,  
Her bright laugh revealing her teeth white as pearl;  
‘I love him and kiss him and sit on his knee,  
But the kisses don’t smell good when he kisses me.  
But, mama’—her eyes opened wide as she spoke—  
‘Do *you* like his nasty kisses of ’bacco and smoke?  
They might do for boys, but for ladies and girls  
I don’t think them nice,’ and she tossed her bright curls.  
‘Don’t somebody’s papas have mous nice and clean,  
With kisses like yours, mama—that’s what I mean?  
I *want* to kiss papa, I love him so well,  
But kisses don’t taste good that have such a smell.  
It’s nasty to drink, and smoke ’bacco, and chew;  
The kisses ain’t good and ain’t sweet, ma, like you.’  
And her blossom-like face wore a look of disgust,  
As she gave out her verdict, so earnest and just.  
‘Yes, yes, little darling, your wisdom has seen  
That kisses for daughters and wives should be clean;  
For kisses lose something of nectar and bliss  
From mouths that are stained and unfit for a kiss.’”

MOTHER: Yes, I read this poem in the last number of the *Prohibitionist*, and I think every girl, big and little, should feel just as this one has expressed it. When Horace Mann was asked where gentlemen should smoke, he said, “Gentlemen never smoke.” Billy Bray said, “If God had intended man to smoke, he would have put a chimney at the top of his head to let the smoke out.”

By giving up every bad habit we may help others to do the same. I must tell you a short story about a friend of mine who helped a young man stop using tobacco.

AMY: Please tell it now, mother.

MOTHER: She had often asked him not to use tobacco, but the habit was so strong that he felt that he could not give it up. At last he said one day: "I think you are as much a slave to tea as I am to tobacco. If you will stop drinking tea, I will use no more tobacco." That put the matter in a new light, and she told him she would think about it. She knew that tea contained a poison, and that it did her no real good, but only harm; so she finally decided to drink it no more. When she next met her friend, she told him that she would use no more tea, and in a short time he left off using tobacco.

ELMER: That must be what the Bible means when it says that we should "provoke one another to good works."

MOTHER: Yes, that is one way. You know I said when we began talking that tobacco was a thief. I will now tell you of something it steals from the master of the house besides his health.

PERCY: I wonder if it is money. I know that is what thieves almost always try to get.

MOTHER: You guessed it at once. Let us see how much this robber will take from a man if he once lets it into the house. One who is a very moderate smoker will spend about forty dollars a year for cigars. People in England would call that sum seven or eight pounds. Suppose a man should smoke thirty years. Here is an example for you, Amy.

AMY: Twelve hundred dollars. How much would that be in English money?

MOTHER: About two hundred and forty-six

\$40
30
—
\$1,200

pounds. That would buy him a nice little home, would it not? Or if he was a lover of books, he could get a good library for that sum. And you must remember that this is for a *moderate* smoker. A merchant said that by saving the money he would have spent for cigars, he laid up twenty-nine thousand dollars, or nearly six thousand pounds. If he had spent it for tobacco, what would he have had for his money?

PERCY: Smoke.

AMY: A dirty mouth and bad breath.

ELMER: A weak heart and weak nerves.

HELEN: He might not have lived to smoke so long, and he might have been a drunkard.

MOTHER: Not very much that is good, for spending such a large sum of money, I must say.

PERCY: I once heard grandmother say that when she saw a man with a lighted cigar, the thought came into her mind, "A fire at one end and a fool at the other." It does seem foolish to waste money that way. I wish I had some of it that goes up in smoke to send me to college when I am ready to go.

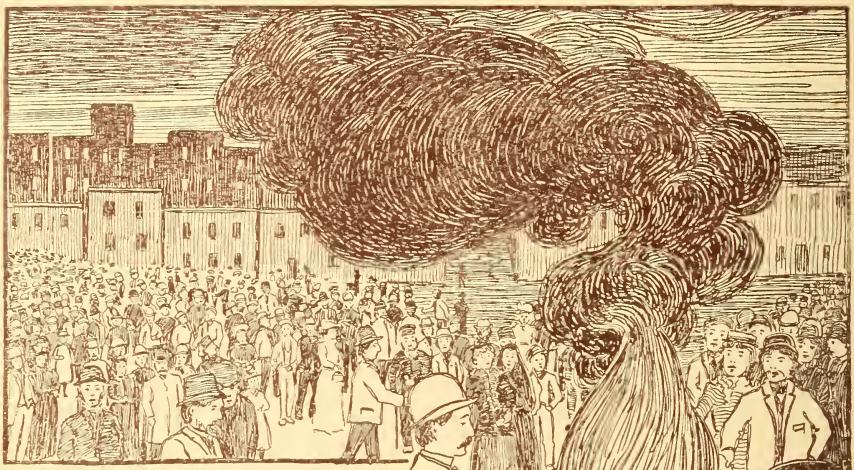
MOTHER: Here is a picture which I think shows this matter in about the right light.

HELEN: Why, what are those people burning in that big fire?

MOTHER: Money, money—nothing but money. Here is a rich man; he is throwing in one thousand dollars; and here is another, who is bringing one hundred pounds. Others are throwing in different sums, some less, some

more. See how many young men there are who need that money for something else.

ELMER: And see the workingmen, too.



MOTHER: Yes; and many of them have no homes, and they wear poor clothes, and eat very plain food. They need many things. It may be the wife at home has not had a new dress for years, and the children have no shoes.

AMY: And just see the little boys burning up their money, too!

MOTHER: How very sad! They are only children, and yet they throw away their pennies and dimes. What are all these people getting for their money?

HELEN: Smoke—nothing but smoke.

MOTHER: They get smoke, it is true, but they also get pains and aches. Tobacco laughs as it takes their money, and grows larger and stronger every day.

PERCY: But, mother, can nothing be done to stop their burning up money like that?

MOTHER: You think some one should call out, "Stop, thief!" do you? Perhaps that was what King James, of England, thought; for when people began using it in that country, he wrote a book, in which he said that smoking was "loathsome to the eye, hateful to the nose, harmful to the brain, and dangerous to the lungs." The Russian Government tried to put a stop to smoking by saying that if a person were caught using tobacco, his nose should be cut off. Perhaps it was thought that people who abuse smelling that way had no right to have a nose. The sultan of Turkey once put to death those who smoked, or used snuff.

PERCY: I should think such laws would have stopped its use in a little while.

MOTHER: They did not; for people can not be made to do right in that way. They used it more than they had before. I think the best way is for the master of every body-house to say, "I will never, no, *never*, touch it; and I will do my best to let others know how hurtful it is, so they will not use it." Many, very many, do not know how much harm tobacco does in the body, nor what a sinful waste of money it causes. They spend it a few pennies at a time, and do not stop to think how much it

amounts to in a year or a lifetime. More money is spent for tobacco than for bread. One hundred times as much money goes up in tobacco smoke as is given to missions. Let us do all that we can to prevent this waste. No bird or animal would ever be guilty of taking into its body anything so harmful.

## MINNIE AND HER CANARY.

## MINNIE'S REBUKE.

" You were a naughty bird to-day;  
     It shocked me, do you know,  
     To see you fly from brother Frank,  
     And pick at cousin Joe.

" Now tell me why you acted so;  
     There, don't begin to sing,  
     But tell me why you were so rude,  
     You saucy little thing!"

## THE BIRD'S REPLY.

" I *had* to leave your brother Frank,  
     Or else to stay and choke;  
     He had a nasty cigarette;  
     I could not stand the smoke.

" And with your cousin Joe—oh, dear!  
     He put his mouth to mine,  
     And, oh! I thought I'd faint away,  
     For he'd been drinking wine.

" The little birds don't do such things;  
     No crow, or paroquet,  
     Or other bird, would swallow wine  
     Or smoke a cigarette."



**M**OTHER: Bad as it is to steal, it is worse to kill. Dreadful as it may seem, yet it is true that a murderer watches to get into the body-house; and unless it is kept out, sooner or later it will ruin the house and kill the master. It has different names, but the most common are Cider, Beer, Wine, Ale, Brandy, and Whisky; but its real name is Alcohol. I have some here in this bottle.

ELMER: Why, it looks like clear water!

MOTHER: So it does. Let us see if we can find out how it is different from water. I will pour a little into this saucer. Percy, you may light a match and hold close to it.

AMY: Oh, it burns!

MOTHER: Will water burn?

HELEN: No, water puts out fire.

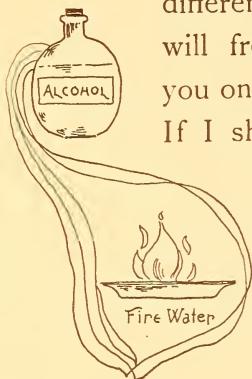
MOTHER: Here is a tester. I will pour a little whisky in it and boil it over this spirit lamp. Now the steam comes out. Percy, you may light a match and hold it close to the steam.

PERCY: Oh, see it burn!

MOTHER: Will steam from the teakettle burn?

AMY: No, mother.

MOTHER: So you see the American Indians gave it a very good name when they called it "fire-water." Another difference between water and alcohol is that water will freeze, but alcohol never freezes. I will show you one thing more. Here is some oil in this bottle. If I should pour in some water, would it mix with the oil?



PERCY: No; the oil would stay on top.

MOTHER: But alcohol will mix with oil. Let us try again. Here is a fresh egg broken into a glass. If I should pour some water over it and stir them together, it would not change the looks of the egg. Instead of water, I will pour in some alcohol. Now watch the mixture as I stir them together.

ELMER: Why, the egg looks as though it were cooked! It is getting hard.

MOTHER: Yes, and if I should put a little piece of lean meat in alcohol, it also would become hard. Now the reason that the egg or a piece of meat becomes hard is because alcohol has such a liking for water that it draws the water out, leaving the egg or meat hard and dry. Alcohol does the very same thing in our bodies; that is, it takes up the moisture in the nerves, muscles, and other parts; and I think that must be why it creates such a terrible thirst, which can not be satisfied. The poor man who drinks, thinks that he wants more alcohol, when it is really for water, water, that every part of his body is calling. I think you already see that alcohol is so different

from water, the drink that God made for man, that it was never intended that we should drink it.

PERCY: But how is alcohol made?

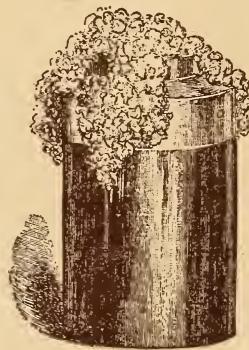
MOTHER: Alcohol comes from death. Something must decay and die to produce it. We do not find it in wheat or any other grain. Peaches, plums, pears, apples, and grapes say, "It is not in me," yet it can be made from all of them. Do you remember when I was canning fruit how I put it boiling hot into glass jars, and put the cover on as quickly as I could, to keep the air out?

HELEN: But why did you do that?

MOTHER: Because there are little germs, or "ferments," in the air, and if they should get into the fruit, it would decay, ferment. I once had a jar of fruit spoil, and before I noticed it, it had turned to wine. In wine and cider the ferments are not shut out, and they make it "work," ferment, or turn to alcohol.

AMY: Is beer made in the same way?

MOTHER: Very much the same. When a brewer makes beer, he takes some corn, wheat, rye, or barley, puts it in a dark place, and wets it. Soon it begins to sprout, or grow. The grain is dead. He dries it in an oven to stop its growing, and the grain is then called malt. After this he mashes the malt, soaks it in water, and drains off the liquid, boils it, and puts in some yeast, which you know is made of millions of little ferments. They are like seed; and millions more grow from them.

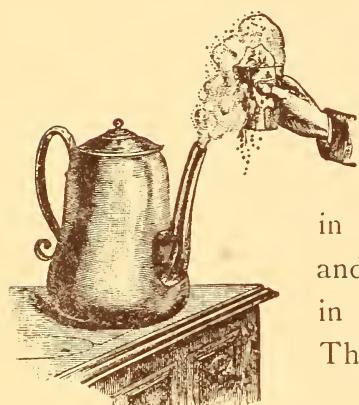


"Ferments."

A dirty scum rises to the top, and alcohol has come to stay in the liquid. It is the alcohol that makes it taste good to those who like beer.

ELMER: But where does alcohol like this you have shown us come from?

MOTHER: By dis-til'ling wine or beer.



*See the drops fall.*

AMY: What does "distil" mean?

MOTHER: To distil means to fall in drops. See the drops of water gather and fall as I hold this glass of ice-water in the steam coming from the teakettle. The drops are distilled water.

HELEN: Is that the way they distil wine and beer?

MOTHER: They could hardly do it in this way, but men found that by boiling beer or any liquid having alcohol in it, and letting the steam pass through a long tube called a "worm," they got stronger alcohol. You see the alcohol comes out in the steam, and as it passes through the long tube, or coil, it is cooled, and drops into a cask. The oftener it is distilled, the stronger it grows, that is, the more pure alcohol there is in it.

ELMER: But why do you call alcohol a murderer?

MOTHER: Because it kills. Strong alcohol will kill any living thing. Dr. Richardson, of England, has said: "There is no animal that may not be affected by alcohol. A pigeon will take opium enough to kill several men, and receive no harm; but alcohol will poison it. A goat can

take enough tobacco to kill several men, but it can not take alcohol."

HELEN: I once read of a minister in Wales who was drinking in an ale-house, and he gave some of the drink to a tame goat. The animal drank until it became drunk and fell down. The minister, too, became so drunk that he had to be carried to his home. He was very sick the next day, but the third day he again went to the ale-house and began drinking. The goat was there, and he offered it more ale, but it would not touch it. When the minister saw that a goat was wiser than himself, he was so ashamed that he gave up drinking.

MOTHER: That was a sensible goat surely. There are many stories which might be told about animals that have drunk alcohol, but, having learned its effect, would never touch it again. It is a pity men are not as wise.

AMY: I do like stories, mother. Won't you tell us one, please?



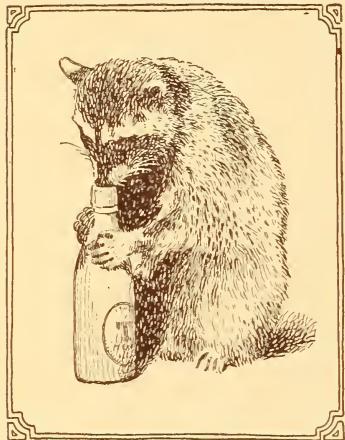
*The goat would not touch it.*

MOTHER: Here is a picture taken from life. This coon is trying to get a drink of beer. A coon, like a man who gets an appetite for strong drink, will do almost anything to satisfy his taste. I once read of a man who had two tame coons. One, I am glad to say, was a temperance coon, and, though his owner had barrels of beer, he never tried to get a drink. The other by tasting learned to like beer, and he would do many strange tricks to get it. One of his tricks was to go to a beer barrel, and when he had partly unscrewed the tap, he would lie on his back under it and drink till he was dead drunk.

ELMER: I should think that was bad enough for a coon; he did not have as much sense as the goat; but I think it is very much worse when a man fills himself with beer.

PERCY: But, mother, how do we know that alcohol is a poison?

MOTHER: By the results which come from using it. Its first effect is to make the body feel warm, and the extra blood sent to a man's brain makes him sing, talk, and feel very gay. He says things he would be ashamed to say if sober. He thinks he is rich when he is poor, and that he is very strong when he is really weaker than



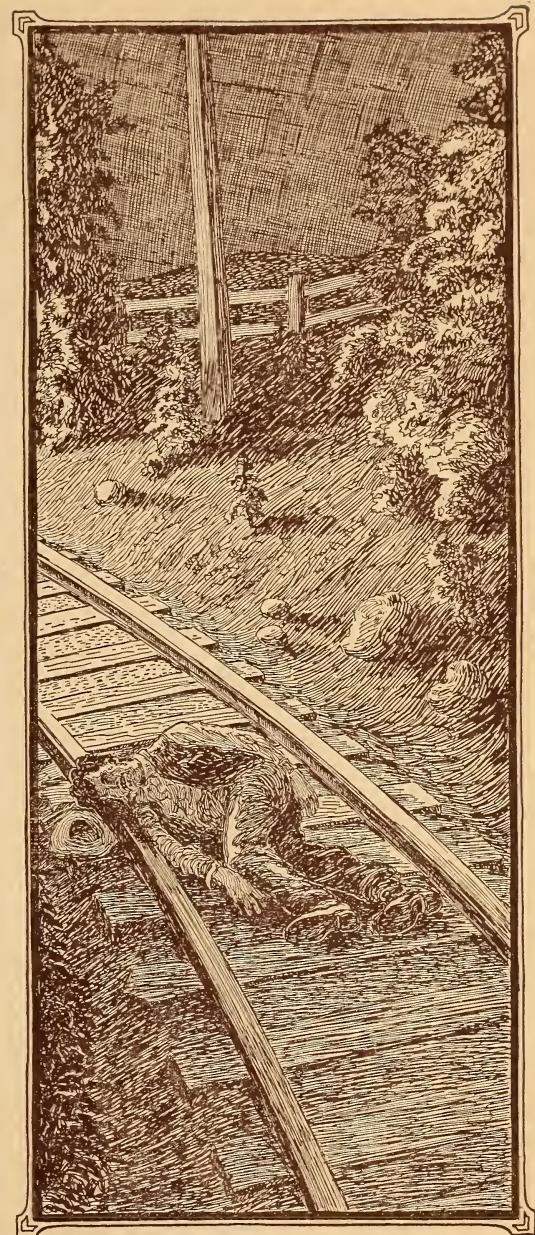
*"This coon is trying to get a drink of beer."*

before. If he drinks still more, his feet begin to go wrong; but I need not tell you how a drunken man walks.

AMY: He staggers.

MOTHER: Now let us see *why* he staggers. The poison in the drink he has taken has put his small brain and the cord in his spinal column to sleep. As they control the legs and the feet, he stumbles along, and wonders why the sidewalk is so narrow and crooked, and why he can not go where he wishes to. This is the second effect.

If you should hold a little alcohol in your mouth a few minutes, it would feel numb. That is because the nerves in the mouth and tongue are put to sleep so they can not taste or feel. If the man takes still more



drink, *all* his brain goes to sleep. When men are drunk, the nerves all over the body are asleep, so they do not know when they are in danger. A man may fall down on a railroad track, and he will not hear the train coming which will crush him to death. He may walk off into a river from a bridge; but he sees no danger in taking the step. He does terrible things that he would never think of doing if he had not taken this poison. He will beat his wife, kill his children, or he may commit other crimes that will cause him to be taken to prison. When the effect of the poison has passed, sometimes he remembers nothing that he has done, and knows not when he came or why he is there.

ELMER: I should think men would know better than to take so much drink.

MOTHER: There is no safety in even tasting it. When once this murderer has them in its grasp, they have no power to help themselves. One glass calls for two; two must be followed by four. The awful craving can not be satisfied till the man can drink no more.

HELEN: But proper food and drink do not make us feel that way. If I eat two potatoes to-day, I don't want six to-morrow; or if I take two glasses of milk or water, it does not make me thirsty so I want four more.

MOTHER: That is true; and it shows that alcohol is neither food nor drink. It is only such poisons as alcohol, tobacco, opium, and those related to them, that create such an appetite. Alcohol finally brings its victim to the last stage.

AMY: What is that?

MOTHER: The man becomes "dead drunk." He is not quite dead, but he is next door to it. He can not feel, hear, or see. His body is cold, much like a corpse. If it were not for his heavy breathing, we would say he is dead. Every part of the man he himself can control, has been handed over to the murderer, alcohol. But his faithful heart stands by him still. It suffers, too, but with painful effort it slowly beats, and the air comes and goes in gasps.

AMY: And does he get well?

MOTHER: Sometimes, and at other times he really dies. It is an awful sight when a man by his own act brings himself so near to death. Not long ago I read of a young man in this town who drank until he became dead drunk. His friends who were with him put him in an old shed, and in the morning he was found dead. This murderer alcohol had gained one more victim. But there are other things this murderer brings to men. A doctor was talking not long ago to a crowd of school-children, and he asked them what would finally come to a man if he kept on drinking.

"He will have the D. T.'s," shouted one boy.

PERCY: What did he mean by "D. T.'s," mother?

MOTHER: He meant de-lir'i-um tre'mens.

HELEN: What is that?

MOTHER: It is a sickness caused by alcohol. You have sometimes had bad dreams when asleep; but in this disease the man has dreadful dreams when he is awake. He thinks snakes and other creatures are crawling over him.

I once saw a little boy, not over ten years old, the son of a drunkard, who had had de-lir'i-um tre'mens. He had his father's craving for strong drink; for a boy's head inside is often like the father's, just as his hair, eyes, and features are like his.

ELMER: What a dreadful thing alcohol must be!

MOTHER: But it is guilty of other wrongs than these. Nearly all the people who go to the insane asylums are sent there by it. It fills the prisons with men and women, because it makes them unsafe to go free. It sends people to the poor-house, and brings poverty, sickness, distress, and broken hearts to thousands of people. No tongue can tell the misery, sorrow, suffering, and agony it brings.

HELEN: And isn't more money spent for alcohol than for tobacco?

MOTHER: Yes; the flames rise higher from the money thrown into this fire than from the other. Nine hundred million dollars, or about one hundred and eighty-six million pounds, are spent each year for this murderer. Twice as much money is spent for alcohol as is used to buy bread. Just think of it! But we can not even imagine this great waste in money alone. Then add to that the sickness, tears, broken hearts, ruined homes, the many deaths caused by it, and we can only wonder that alcohol has not been banished from the world, never to return. It is such a monster of evil that we can not understand it.

PERCY: But, mother, if people only knew how much it costs, and how much harm it does, would they not let it alone?

MOTHER: Many would, and we must do all that we can to help and teach them. Every one who suffers from alcohol should have our pity. You have learned in our past talks how it does harm to the stomach, the liver, the muscles, and the lungs, and, most of all, to the brain and nerves. Just as this alcohol hardened the meat and egg, so alcohol works in our bodies to hurt and destroy the wonderful living rooms of which the body-house is made.

Alcohol is a liar. Listen to what the wisest man who ever lived says about it: "Wine is a mocker, strong drink is raging; and who-so-ev'er is deceived thereby is not wise."

Alcohol says, "I am a food, and will make your body warm."

Truth says: "It's a lie. You do not feed any part of the body. It is true that you make it feel a little warmer for a time, because all the servants work so hard to throw you out; but the whole body is colder afterward than at first."

Alcohol says, "I will make your body so plump and fat that you will look very healthy."

Truth says: "It is true that you make the body fat. The liver ought to weigh about four pounds, and you have made it sometimes weigh as much as fifty. The fat you give is disease, not strength."

Alcohol says, "I will help you digest your food."

Truth says, "You hinder di-ges'tion, and make the food unfit to make good blood."

Alcohol says, "Let me come in, and I will make you merry."

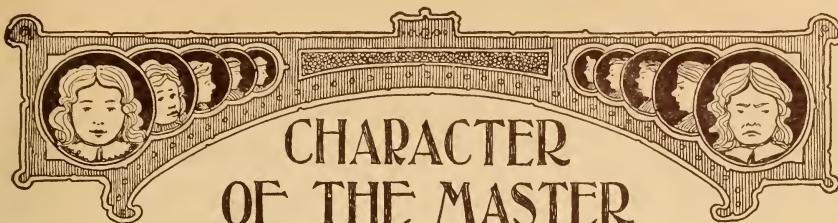
Truth says: "Who hath woe? who hath sorrow? who hath con-ten'tions? who hath babbling [foolish talk]? who hath wounds without cause? who hath redness of eyes? They that tarry long at the wine; they that go to seek mixed wine. Look not thou upon the wine when it is red, when it giveth his color in the cup, when it moveth itself aright. AT THE LAST IT BITETH LIKE A SERPENT, AND STINGETH LIKE AN ADDER."

"Take a drink? No, not I!  
 Reason teaches better  
 Than to bind my very soul  
 With a galling fetter.  
 Water, sweet and cool and free,  
 Has no cruel chains for me.

"Take a drink? No, not I!  
 I have seen too many  
 Foolish men by taking drinks  
 Stripped of every penny.  
 Water, sweet and cool and clear,  
 Costs me nothing all the year.

"Take a drink? No, never!  
 By God's blessing *never*.  
 Will I touch, or taste, or smell,  
 Henceforth and forever!  
 Water, sweet and clear and cool,  
 Makes no man a slave or fool."

—*S. S. Times.*



## CHARACTER OF THE MASTER

**M**OTHER: We have now taken a hasty look at the larger rooms in the body-house. I hope that the short visit we have made to each will create in you all a wish to know more about them. Do not think you have learned it all; for we have only begun to study its beauties and wonders.

HELEN: But why do we need to know so much about it?

MOTHER: That you may be able to care for it properly, and "glorify God in your body, and in your spirit, which are God's." We are not our own, and some day we must give account for the way in which we have treated this holy temple given into our care. "Whether therefore ye eat, or drink, or whatsoever ye do, do all to the glory of God."

The house we live in was not made for us simply to look at and admire its beauty. It was made to be useful, as well as beautiful. We have brains, to think and plan. We have eyes, to see what needs to be done, and ears, to hear what we are told to do. We have two hands, with ten fingers, which makes it easy for us to handle different objects; and they must be taught to be skilful. We also have two feet, to carry us wherever work needs to be done. A doll may be pretty, but it is not very useful, for it can not do anything.

PERCY: And there seems to be plenty of work to be done everywhere.

MOTHER: There certainly is! Just think of how many houses must be built, how many clothes must be made, how many breakfasts and dinners must be cooked, how many schools there are to teach, how many fields to plow, sow, and reap, how many books and papers to be made that we may have something to read, and ever so many other kinds of work to be done to make ourselves and others comfortable and happy.

AMY: Can we children help?

MOTHER: Yes, indeed; there is something for every boy and girl to do in lifting burdens, and making the world better and brighter because they have lived in it.

ELMER: What can boys do?

MOTHER: One of the best things which can be said of any boy is that he is a real help at home. Of course he should go to school and learn many things there; but he should also learn to work. A boy can learn to drive a team, plow, hoe, plant, rake, and do the different kinds of work to be done on a farm or in a shop. He should learn how to use tools, the hammer, saw, plane, and others; for almost every man at some time in his life needs to have knowledge of this kind.

PERCY: Should boys ever do housework, mother?

MOTHER: It is no disgrace to them to know how to wash dishes, make a bed, sweep a floor, or to set the table. If they can do such things they will be a help to mother as well as to father. They may bring in the wood and coal,

and so save many steps for mother and sister. Nothing that a boy can do in the house makes him unmanly. It rather marks as a true gentleman one who is able and willing to do whatever needs to be done, no matter what it is. There is one other thing that he should not fail to learn.

HELEN: What is that?

MOTHER: To keep his own room in order. He should hang up his clothes, and have a place in which to keep his things, and see that they are kept there. There is no reason why a boy's sister should hang up his coat and hat, put away his books, or keep his room in order. He can do all these things for himself. I once went into a boy's room after he had dressed to go for a visit. It looked as though a small cyclone had passed through it. Soiled clothes were on the table and under the bed. A muddy boot was on a chair, and his jacket and trousers were thrown in a heap in a corner. The bed was unmade. Dirty water stood in the wash-basin. The comb was on the floor. All was confusion and disorder. A dis-or'der-ly boy makes a dis-or'der-ly man.

ELMER: But you haven't told us what the girls should do.

MOTHER: Some girls seem to think that if they can have a pale face, white hands, and a slender form, this makes them ladies. But a girl can be healthy, strong, and useful without being rough, coarse, or unladylike. Perhaps you have seen girls who thought it was all right for their mothers to cook, wash, scrub, and do all that must be done in a home, but who seemed to think that their own hands were too pretty and were not made to do that kind of work. Some

one ought to whisper to such girls that their hands are no better than their mother's. Their hands have ten fingers, just as hers have. They were made to work, just as hers

were; and they should be trained to be so loving and helpful that those persons for whom they care most will not stop to ask if they are white or brown.

HELEN: I am not afraid to use my hands, mother. What shall they be taught to do?

MOTHER: How to wash, to sweep, scrub, cook, and sew; how to make a bed, and sweep in the very best way; how to wash and iron well. It may be that girls who do this kind of work will get tired,



*Learning to sew.*

and their backs and arms will ache, but it will not hurt them. A night's sleep will rest the muscles and make them ready for another day's work. It is right for girls to excel at school; but while studying their books, they should learn to be useful and lighten the burdens at home.

AMY: But should girls work out-of-doors, mother?

MOTHER: If they live where they can, it is well for them to do so, at least to learn how to do some of the lighter work that comes to father and brothers. They should be able to milk a cow, harness a horse, make a garden, and do some of the lighter kinds of farm-work. Miss Frances Willard was taught this when a girl, and it proved to be a lifelong blessing. But in this, our last talk, we will take just a peep at the rooms in which the master of the body-house lives. In these rooms no one may enter but the master himself.

PERCY: But where shall we find these rooms?

MOTHER: They are in the *mind*. I must tell you before we go further that they are our *thoughts*. I can not tell what you think about, and you can not tell what is in my mind, only as we put our thoughts into words. I wish I could help every boy and girl to feel how important it is to have clean, good thoughts. "As he *thinketh* in his heart, so *is* he;" that is, a person is no better than his thoughts are, and he is just as good. If the thoughts are wrong, the person is all wrong, no matter how good he may appear to be.

HELEN: I found a little poem about our thoughts and put it in my scrap-book. May I read it, mother?

MOTHER: Please do; I know we all want to hear it.

HELEN: Here it is:—

"There were idle thoughts came in at the door,  
And warmed their little toes,  
And did more mischief about the house  
Than any one living knows."

"They scratched the tables and broke the chairs,  
 And soiled the floor and wall;  
 For a motto was written above the door,  
 'There's a welcome here for all.'

"When the master saw the mischief done,  
 He closed it with hope and fear,  
 And he wrote above, 'Let none  
 Save good thoughts enter here.'

"And the good little thoughts came trooping in,  
 When he drove the others out;  
 They cleaned the walls, they swept the floor,  
 And sang as they moved about.

"And last of all an angel came,  
 With a kindly, shining face,  
 And above the door he wrote, 'Here  
 Love has found a dwelling-place.'"

MOTHER: That is very good. Let us all take for our motto, "Let none save good thoughts enter here." Now I think you understand that as we are talking of passing through different rooms, we mean that we are in the "chambers of the mind," and we imagine that we are looking at a person's thoughts. We will look inside of just a few rooms, and from them we can form an idea of the rest.

ELMER: Where shall we go first?

MOTHER: I think you will like to look in here, where the master keeps his pets. He is fond of birds, cats, dogs, and all kinds of animals; and where this room is large in the mind, you will find the master kind to them all. He will not give them pain if he can help it, and takes pleasure in making them happy.

AMY: I think I should like to visit this room often.

MOTHER: In this smaller room he keeps his money. Sometimes this room is so small, and he cares for it so poorly, that he wastes about all that he gets, and keeps very little. In some houses this room is very large, and the master lives here nearly all the time. His greatest delight is to shut himself in and count his money over and over. He becomes very selfish by doing in this way, and he will not part with what he has either for his own comfort or that of others. People who have such large rooms, and use them in this way, are called misers.

PERCY: I don't want to be one.

MOTHER: I am glad you do not. It is best to have only a medium-sized room of this kind. Here is the room where Taste sends his messages. If the room is very large, you may be sure that the master enjoys nothing so much as something good to eat. This is not a good room in which to spend much of one's time, though every one should visit it several times each day. There are quite a number of small rooms not far from this one. In one the master goes to study his a-rith'me-tic. In another, he measures things. In another, he has a pair of scales to weigh them. In another, he keeps samples of all shades of colors. But we can not stop in these small rooms.

Ah, here is Memory Hall! Many persons like to spend most of their time here. See what a great number of pictures are hanging on the wall.

HELEN: O mother, let us stop and look at some of them!

MOTHER: Perhaps I should first tell you that the master

of every house is all the time making pictures, whether he is an artist or not. His acts, good and bad, make pictures in the mind. When they are finished, he hangs them in this hall. Some are in dark corners, and he hardly ever looks at them after they are made; he even forgets that he made them. The masters of some houses spend many happy hours in this hall. Others do not like to go near it. Their pain or pleasure depends on the kind of pictures they have made. I have seen some who would weep in sorrow of heart as they looked over the different pictures that they had hung there, and some they would not for anything have any one see. There is only One who can take away these sinful pictures, but He can make them white as snow.

ELMER: Then we ought to have all our actions such that pleasant pictures will be hung in our hall of memory.

MOTHER: I think so; but we will pass on to some of the higher, more important rooms. Here we find the place where the master receives the poor, and where his acts of kindness are done. In some houses this is the smallest room of the whole. In others, it is large and lofty, and the master spends much time there. He is so good and kind that people can not help loving him when this is the case.

AMY: This next room looks like a church.

MOTHER: We might call it the chapel; for it is here that the master goes to pray, and worship God. Some use this room a great deal; others, very little. It is the highest, best room in the house, and the master ought to visit it many times each day.

PERCY: And what is this large room?

MOTHER: This is where the master thinks things over, and "makes up his mind," as we say. This is the "will" room; that is, the person decides what he will or will not do. This is an important room indeed. It is a good thing to have a good, strong will if we only *will* to do the right thing, for it helps any one in doing right; but if he is doing wrong, it causes him to do more wrong.

To show what I mean, we will say that a man who has been drinking beer or cider learns that the reason he likes these drinks is because there is alcohol in them, and he sees that they will do him harm, and that the more he drinks them, the more he will want them. He doesn't want weak muscles, a bloated body, a fatty liver, or a weak brain and nerves. He does not wish to go to the insane asylum, to the jail, to the poor-house, or into a drunkard's grave. But he likes the alcohol. It is hard to give it up, and his friends will call him a "temperance man," and will jeer at him, and say that he is a coward. Now what will he do? He goes into his "will room," and he says to himself: "I have been a slave long enough. From now on I will be master of this body-house. It makes no difference how loudly Taste may call, nor how badly I want him to have his own way, I WILL NOT give up, God helping me, and I am going to put my will on the right side of this question."

ELMER: Couldn't he overcome any other bad habit in just the same way?

MOTHER: Yes; whether he wants food that is not good, or too much of that which is good; whether he wishes to leave off using tobacco, or other bad habits of any kind,

when he gets his will on the right side, the battle is more than half over.

AMY: Then a person can not have too much will.

MOTHER: Not if he wills to do right; but if he places his will on the wrong side, it is a sad thing. Sometimes he wills to have his own way, no matter how it may affect himself or others, and that is bad for him and for his friends.

Here is a room where the master measures people. We can imagine that they stand about like statues, and some he places high in his esteem, and the others lower down. I think about the worst thing he could do would be to place himself higher than any one else. Boys and girls are sometimes in danger of doing this, even thinking that they know more than their father and mother. It is well to have a fair-sized room of this kind, but bad to have one which is large. We shall not have time to visit more of the rooms to be found in the mind, though there are many others that we might visit.

HELEN: I wish we might hear about all of them.

MOTHER: You may, as you grow older. You must be very careful to have the master of your own house live in the best and highest rooms. Strange as it may seem, yet it is true that the rooms he stays in most will grow larger the more they are used. Some live in the lower, poorer rooms all their lives. The people we love best spend most of their time in the highest rooms.

PERCY: Is there any way by which we can tell where the master spends most of his time?

MOTHER: Yes; clean, kind thoughts make marks on

our faces, and wicked, cruel thoughts leave their print also. Our thoughts pull up or draw down the corners of the mouth, and they make little wrinkles under the eyes and in the forehead. Sometimes they make little holes in the cheeks, which we call dimples. If our thoughts are kind, pleasant, happy thoughts, they draw the corners of the mouth upward; the wrinkles are smoothed out of the forehead, and there are some merry ones which gather round the eyes and make the face look so pleasant that we want to get near its owner and become better acquainted.

AMY: I didn't know that our thoughts looked out in our faces.

MOTHER: If either good or bad thoughts come to live in your mind all the time, they will print themselves on your face and change your looks. The good thoughts will make your face beautiful, though your hair may be as straight as an Indian's, your nose crooked, and your mouth large. On the other hand, though your hair may curl, your skin be as fair as a peach blossom, your features be perfect, yet if you let bad thoughts live in the mind, your face will no longer look lovely to others. It is only a kind, unselfish heart that can give true beauty.

HELEN: I have often wished that I might be pretty, like some of the girls at school, but I know now how to be lovable if I am not beautiful.

MOTHER: There are a few other things which will help you to have a good-looking face. First, keep it clean. Then the next thing is to eat good food, that you may have a clear, healthy skin and bright eyes. You

should also be careful to brush your teeth, that these little guards may always be dressed in the cleanest of white uniforms. Then keep your hair in good order. Brush it often, and keep the whole head sweet and clean. If you do these things, you will always be pleasant to look at.

I was reading not long ago about a little girl who was told of the wrinkles that smiles leave on our faces, and the wrinkles that scowls leave, as well as those left by pain, thought, and care. The child listened, and then said brightly, "My grandma has *lots* of wrinkles, but they're all *smile* wrinkles, *every one of them*."

So, my children, as the days pass by, see that your mind is pleasant, and your body-temple kept clean and pure. Thus you will live useful lives, and be a blessing to yourselves and others.

"If I knew the box where the smiles are kept,  
    No matter how large the key  
Or strong the bolt, I would try so hard,  
    'Twould open, I know, for me.  
Then over the land and the sea, broadcast,  
    I'd scatter the smiles to play,  
That the children's faces might hold them fast  
    For many and many a day.

"If I knew a box that was large enough  
    To hold all the frowns I meet,  
I would like to gather them every one,  
    From nursery, school, and street;  
Then, folding and holding, I'd pack them in,  
    And, turning the monster key,  
I'd hire a giant to drop the box  
    To the depth of the deep, deep sea."

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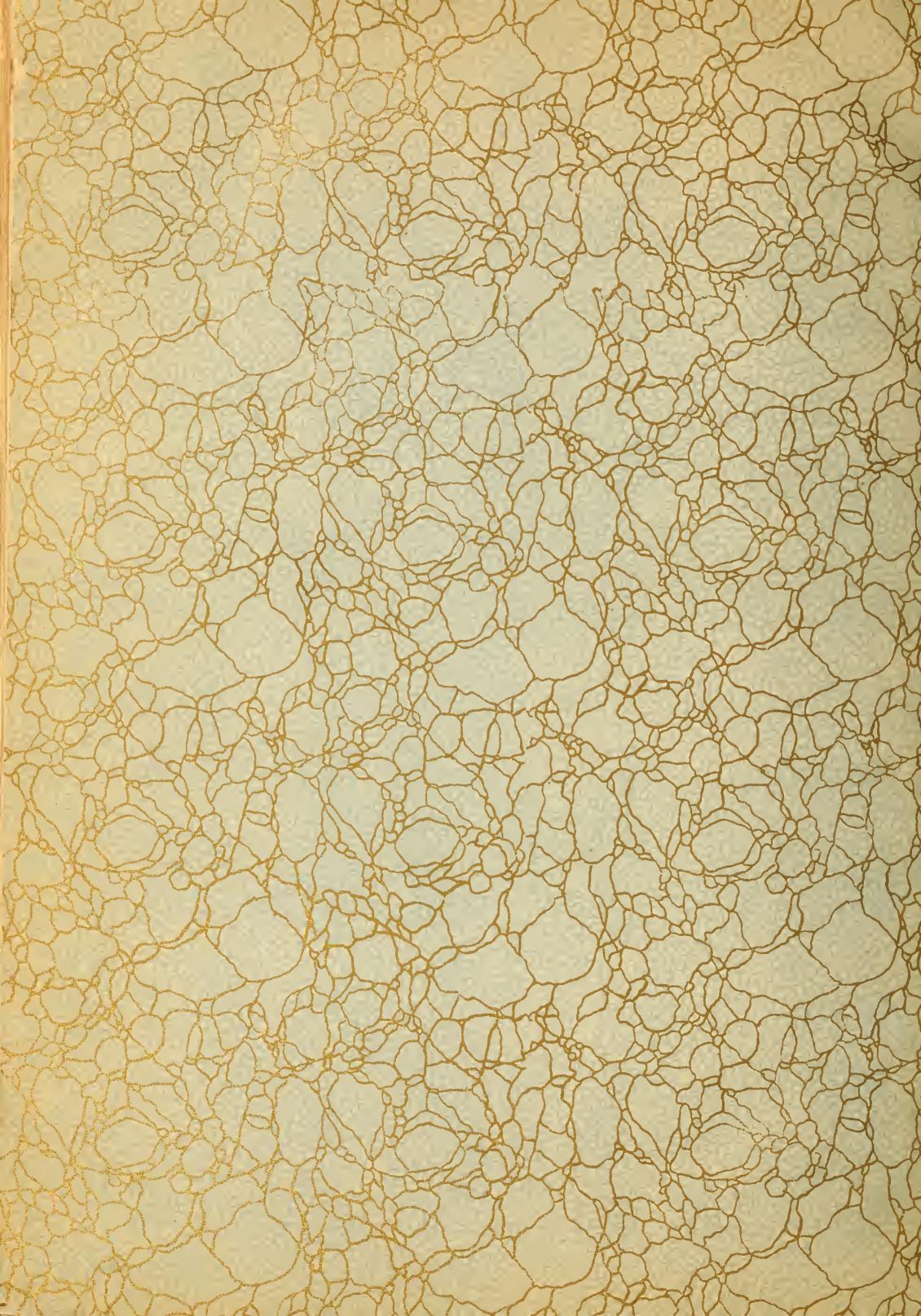
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